K Howard (E.)

REMARKS
On the NEW
PHILOSOPHY
OF
DES-CARTES.

In Four PARTS.

I. *Of the Principles of* Humane Knowledge.
II. *Of the Principles of* Material Things.
III. *Of the Principles, as they relate to the* Visible World.
IV. *Of the Principles of the* Earth.

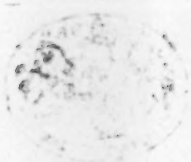
Done by a Gentleman.

——*Felix qui potuit rerum cognoscere Causas.* Virgil.

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V



THE AUTHOR'S EPISTLE DEDICATORY TO HIS Royal Highneſs THE PRINCE OF DENMARK.

PRINCES, Great Sir, of ſuperlative Eſteem have to their Glory promoted the Excellencies

of Science, and are accordingly conſpicuous in Records of Fame: If they have been Illuſtrious in their ſphere, the Court; they have not judg'd themſelves greater under a Canopy of State, than when their Grandeur has Flouriſh'd, with the Incouragement and Growth of the Arts of Knowledge.

And tho' Princes, as to the conduct of their Affairs, may by their Prudence ſelect their proper Miniſters, and Courtly obſervance

vance of ſuch on whom they confer the Grace of Officiary Dignities: 'Tis not to be denied, That Science, without other Courtſhip than its own Merit; ought to be an eſpecial Favourite of the Soul, and chiefly ſo valu'd by the moſt Eminent of Men.

A Motive of ſuch high Importance, that it caus'd the Great *Alexander* to declare, That he had rather be a Prince of Science, than Commander of the vaſt Dominions Poſſeſs'd by him:

him: And doubtleſs, he in great part, made good the Expreſſion, both as to his own Abilities, and the Improvements he receiv'd from his Tutor *Ariſtotle*; whoſe Learned Works had never been ſo far diffus'd in the World, had they not been incourag'd and aſſiſted by the Countenance and Power of his famous Pupil.

The next great Example was *Julius Cæſar*, who is mention'd, by *Plutarch*, as a Parallel in Valour and War-

Warlike Conqueſt's to the Mighty *Alexander*; but far ſurpaſſing the conduct of his Arms and Counſels of State, as to the perpetual Memorial of his Glory and Erudite Accompliſhments; Men famous in Mathematical Science were Authoris'd by him, to amend the then Erroneous computation of the Sun's Annual Revolution; to which at this Day, in the *Julian* Year, we own our Calendar, and the Month of *July* dedicated to his ever-

everlasting Renown, in the Year that was Rectified by his Imperial Command: A work transcending the greatest of his Earthly Fame, as to the height of the Sun, the Sovereign of Light, his Name is exalted in Story.

If the Great *Julius Cæsar* from his Soveraign Dignity and vast Ingenuity of Mind, was signally accomplish'd to patronise so sublime a Performance; what could recompence the Deserts of such famous Persons,

ſons, who were his ſubſervient Aſſiſtants, or as it were the Miniſters of Heaven, in order to give the Sun's Ecliptick Year a renovated Conduct and Glory: Of which Perſons *Soſigenes*, a Mathematician of *Ægypt* is chiefly mention'd.

But were his Aſtronomical Abilities compar'd with admir'd *Tycho*, who was of Noble Extraction in the ſame Nation where the many great Predeceſſors of your Royal High-

a neſs

neſs had Dominion and Birth; 'tis not to be doubted that the accurate Skill and Obſervations of *Tycho* the *Dane* had exceeded *Soſigenes* the *Ægyptian*: And poſſibly, had he been conſulted, might have furniſh'd the World with a more perfect Computation of the Year, than is, either the *Julian* or *Gregorian* Account. His admirable Skill, Vigilancy and Experience, imploy'd Twenty Years in Aſtronomical Science, did in a manner Crown his vaſt

Endea-

Endeavours: There being no Obſervations, at this Day, that can compare with thoſe made by unparallell'd *Tycho*.

And 'tis not improbable, amongſt his Aſtrological Predictions, were they known to us, that he ſignally Preſag'd the happy Alliance of Your Royal Highneſs both to the *Daniſh* and *Engliſh* Throne: And how, in future Time, you would be no leſs a Favourer and Promoter of the Excellencies of Mathe-

matical Learning, than any of Your Monarchial Predeceſſors.

Nor can the extraordinary Dignity be unknown to Your Royal Highneſs, by which that Science does, beyond all others, advance the Elevation of the Eyes and Heart, in order to the Divine Contemplation of the wonderful Movements and Beings of the Celeſtial Orbs, however far diſtant from us.

If the Sun Revolves in his Diurnal Circumference more

more than Sixteen Millions of *Engliſh* Miles; to what admirable, tho' leſs proportion, does then amount the Period he makes in every Hour, and Minute of Time.

Inſomuch, that it may be Affirm'd, that by Aſtronomical Calculations in a high Meaſure, we are Divinely taught to be more perſpicuous Admirers of the Heavenly Works and Conduct of the Almighty, than otherwiſe could be diſcern'd by us: Which won-

wonderful Movements of the Sun, Planets and Stars, together with the Benignities of Heaven incident to their Illuminations, Cauſes and Effects, are, to our Admiration, with ſuch a ſtupendious Facility Diſpos'd, and Ordain'd above; that it can be attributed to no other Original, than the Operations of Incomprehenſible Providence.

But of what Subſtance, and Manner of Exiſtence, the Celeſtial Luminaries, together with the Incommenſurable

menſurable Orbs, Height and Diſtances in which they Revolve, may be defin'd; are Thoughts that have been the inextricable Aſtoniſhment of Learned Pens, as they have been pos'd to determine the Nature of their Eſſence and other Proprieties.

Notwithſtanding, it appears, That by Writers of Refin'd Judgments, the Sun, Moon, and Stars, with whatſoever may be denominated the Orbs above; are deem'd, in a manner,

ner, by them either ſpiritual Appearances, or equivalently ſuch, for want of other extrordinary Epithet, or Definement ſuitable to the Nature of their Eſſence and Motion; by reaſon that their Subſtance does not admit any viſible Change, or Alteration in them: Which would be perceptible, were they not eſſentially diſtinct from all Elementary Compoſitions.

Theſe

These Instances in brief, I thought fit to present to Your Royal Highness, as preparatory to Your Inspection of such Particulars as I have Written in this Book, on the Philosophy, and Mathematical Passages Inscrib'd by *Des-Cartes*: Which are Humbly Dedicated to the perusal of Your Royal Highness, by

Your Most Dutiful
Humble Servant,

ED. HOWARD.

THE PREFACE TO THE READER.

THE *Dignity of* Philoſophical Science, *has always been Celebrated by the moſt Eminent of Men in all its Capacities: For as Men, are endu'd by the Gifts of the Mind, above all other Animated Creatures*; Philoſophy *does by its Excellency highly advance the uſeful Speculations and Comprehenſion of one Man ſuperior to another.*

The PREFACE.

If Princes, *or* Supreme Magiſtrates; *it wonderfully Improves the* Conduct *and* Prudence *of their* Rule, *and fits their ſubordinate* Miniſters *with ſuch ſignal* Qualifications *as naturally lenifie the courſe* Ignorance *of vulgar Men, and Attract their* Obedience. *Tho'* Iron *be a harſh and rugged* Metal, *the* Loadſtone *can affectedly draw it: And doubtleſs* Philoſophical Knowledge, *when duely Communicated, has a more compleat and genuine* Sympathy *on the* Souls *of* Men; *as it uſefully diſplays the benign and facile* Conduct *of* Providence, *in diſpoſing the* Government *and* Contexture *of the* Univerſe, *with its admir'd* Appurtenances: *In which may be obſerv'd ſuch a perſpicuous and endear'd compliance to* Order *and* Rule, *that* Nature *ſeems but an* Empreſs *of* Philoſophical Science, *as ſhe Ordains, by* Cauſes *and* Effects, *the* Obedience *of her numberleſs* Subiects.

From

The PREFACE.

From whoſe great Example *may well be ſuppos'd, That the* Wiſe *and* Learned *of* Men *Inſtituted* Civil *and* Doctrinal Societies, *as the moſt natural* Directors *and* Conſervators *of* Humane Being.

Nor can the total World *be more aptly denominated than the vaſt* Preſence-Chamber *of* Nature; *in which, by a general admittance to the* Eyes *of* Mankind, *may be perceiv'd her outward* Ornaments *of* State *and* Greatneſs: *But in that mighty* Room *ſhe is moſt ſignificantly attended by the Nobleſs in* Knowledge, *who cleareſt diſcern* Philoſophical Grandeur; *and eſpecially how, and where it is moſt requiſitely Eminent when wedded to* Mathematical Science *the* Queen *of* Truth: *Without which* Solemnity, *it is impoſſible to celebrate* Nature, *or* Providence, *the ſublime* Diſpoſer *of her wonderful* Operations, *demonſtrably admirable; and conſequently that the* Hours

of

of Time, *by which we ſubſiſt, together with its commodious* Seaſons, *could not, otherwiſe be computed by us: Whereas, contrarily, ungracious* Ignorance, *as alſo heedleſs neglect and contempt of* Science, *are uſually ſuch* Concomitants *as chiefly proceed from cuſtomary* Sloth *and illiterate* Modes *of* Converſation; *even in* Perſons *of ſuperior Degree, who ſhould be, to the exalting of the Dignity of their* Souls, *leading* Examples *and eſpecial* Incouragers *of ſuch Parts of* Knowledge, *as might* Embelliſh *their* Eſteem, *and* Patronize *the* Endeavours *of others: But too many of theſe, however big in* Looks, Eſtate, *and* Intereſt, *and accordingly their outward* Meen *and* Appearance; *cannot but inwardly* Bluſh, *if deeply conſider'd by them, how diminitively they are* Enſoul'd, *if compar'd with the* Intellectuals *of many of their* Inferiors; *or as if they were* Born *meerly to Injoy the* Affluence

and

and Pleaſures *of* Life, *without recompenſing their value, by fitting of their* Underſtandings *in order to a due* Intelligence *of the* Cauſes *and* Bounties *of* Nature, *from whence they proceed.*

If the Titles that ſuch Men have to their external Grandeur, Quality, *or* Eſtate, *were queſtion'd or debas'd, they would doubtleſs reſent it accordingly; if not hold themſelves oblig'd to clear their* Repute *and* Intereſt, *in all thoſe Conſidrations.*

But were they requir'd to make Out their Claims *to* Polite Literature, *they could not but Concede, That there are more Knights of St.* George *than Honourers of* Science.

Nor can it be deny'd, That whenſoever the Eminencies *of* Science *are not commendably* Patroniz'd, *the Inconvenience muſt neceſſarily ariſe from the too frequent Depravitiess of* Converſation *and* Manners,

Manners *that to cover Foppish, or Debauch'd* Ignorance, *would disguise the want of* Apprehension *by endeavouring to Ridicule* Knowledge *by absurd and licencious* Railleries.

Not that it is to be expected, that all Persons *of* Dignity, *or such as are advanc'd to* Degrees *of* Trust, *or* Magistracy *in the* Nation; *should be all* Proficients *in* Philosophical *and* Mathematical Erudition: *Tho' more advantagious and usefully becoming, in them, relating to their* National Affairs *and* Stations, *on whatsoever account; than to others of inferior concernment and manner of Life. Wherefore, 'tis very conducing both to the* Service *of the* Publick, *and lasting* Applause *and* Fame *of such* Persons; *if they are not* Scientifically *capacitated, or their* Abilities *otherwise imploy'd, that they would be* Renown'd Incouragers *of* Learning, *together with convenient* Bounty; *by*

by which means ſuch Perſons *might be ſupported in* Schools, *and* Places *ſet apart for that purpoſe, that are ſufficiently accompliſh'd to* Inſtruct *others in the beforemention'd* Sciences: *Which in a ſhort time might exalt the Academical* Fame *of* England *to a Second* Athens.

How many Petitions *have continually been preſented to the* Royal Magiſtrate, *and favour'd by* Perſons *of neareſt Acceſs to the* Throne, *that tend to private Advantages and Exaltations to Stations of* Superiority *and* Profit; *but amongſt all theſe* Addreſſes, *few to be obſerv'd, that would advance the publick* Honour *and* Emoluments, *that deſervedly appertain to the Advancement of the* Skill, *and* Arts *of* Knowledge? *Which is no ſmall reaſon, that the moſt conſiderable* Parts *and* Exerciſe *of* Humane Underſtanding *are ſo thinly diſcern'd, or too commonly decay'd amongſt us.*

The PREFACE.

If Scientifical Abilities *have a curſory deference and value, from ſome Perſons who are not Learned enough to prove their* Eſteem *of Performances of excellent Importance; the* Applauſe *that it receives from not a few of them, is no better than the bare* Encomium *of* Vertue: *Which caus'd the Poet* Juvenal *to reflect on the unworthy of his* Time, *when he ſays, that*----- probitas laudatur et alget: *As if* Men *were oblig'd to Improve the* Knowledge *of Others, at the Coſt of their* Diligence; *or enough rewarded, if not Voted down by the* Ignorant: *Which cold regard, or at beſt, but a luke-warm reſpect to* Science; *is no ſmall* Cauſe, *that many of our youthful Nobility and* Gentry *ſo rawly return from* Academies *and* Tutors: *From whence it afterwards proceeds, that they far more incapably enter upon the Service of the* Nation, *at* Land, *or* Sea, *than otherwiſe they might*

might: And for no other Reason, than because Philosophical *and* Mathematical Excellencies *are not more familiarly Taught and Practis'd.*

'Twere too much, in this Place, to recount the many commodious Applications *and* Uses *of those* Sciences, *in reference to* Publick *and* Private Affairs: *Which are, on divers Accounts, so very considerable, as they might deserve the diligence of a* Learned Pen, *to enumerate their Conjoyn'd value; by which the* Causes, Effects, Motions, *and* Operations *of* Nature *would be more experimentally and certainly understood.*

And what ought more sublimely to be consider'd, the continu'd Blessings *of* Providence, *in their most natural* Methods, *bestow'd on* Mankind, *would be without* Philosophical *and* Mathematical Knowledge, *insensibly perceiv'd, if not supinely inadverted by us. And tho' the* Suns Times

faithful Accountant, together with the Moon *and* Stars, *in their outward appearance, invite the Wonder of our* Eyes; *and what is far more incomprehensible, the manner of their* Existencies *and diversified* Progressions *in their* Orbs *above: Yet in none of these Supreme* Considerations, *could they be rationally admir'd, however vast their Distance from us; did not* Science *exalt our* Intellects *to such approximate and necessary* Computations, *as render them, tho' no farther apprehended by us, the effectual* Supporters *of our* Worldly Beings

And if a Catechism *were pertinently Compil'd of the* Works *of the* Omnipotent, *joyn'd to that of his* Holy Word, *and duely explain'd by National* Authority: *It might assure a more palpable* Conviction, *even to obstinate* Opposers, *that* God *does* Exist, *than can be deduc'd from the simplicity of meer* Belief, *howsoever convey'd.*

Nothing

The PREFACE.

Nothing being ſo demonſtrably evi-dent, to Humane Comprehenſion, *as what is apparently manifeſt to the* Eye *and* Senſes ; *to which purpoſe, the* Divine Application *of the undeniable Aſſurance and Proof to be attain'd by the* Sciences *precedently mention'd, would undoubtedly incline the moſt prudent of* Men *devoutly to acquieſce, and profligate from their* Souls, *the too common inconſiderate* Tenents, *and* Atheiſm *of others: As alſo, to their ſuperlative* Glory, *conſpicuouſly diſtinguiſh'd from ſuch numbers of* Mankind, *that no farther imploy their* Underſtandings, *than by Indulging the ſenſual Satisfactions and Pleaſures of* Life: *Amongſt whom, may be found ſuch an impious ſort of* Men, *that to Varniſh their evil* Examples, *and ſtains of* Manners, *would ſeem refin'd under the Name of* Wits: *And thereby arrogate to themſelves an Arbitrary Deciſion, or neglect*

of whatsoever they please to disallow, or is above their Capacities to value: And these, for the greatest part, are antipathiz'd to all polite Science; *or determine it, as a Point resolv'd by them, far inferior to their loose* Drolleries, Lampoons, *scurrilous* Reflections, *and* Abuses *impudently pointed against the ingenious* Desert, *and* Performances *of others; as on the* Feet *of their ignominious* Verse, *they run in the* Nation.

And strange it is, that such ungracious Associators *should not only have their ordinary* Countenancers *and* Abetters; *but also their* Leaders, Men *of* Title, *who, as their* Captain-Generals, *command their undisciplin'd* Lists: *As if by their endeavours*, Ignorance, *and contempt of* Knowledge, *might be no less prevalent, than when the barbarous* Goths *and* Vandals *demolish'd* Records *of precedent* Literature.

But,

The PREFACE.

But, Heaven *be thank'd, the preſent* Age *does yet abound with ſuch laudable* Ingenuities *and* Patrons *of* Erudition, *as enough defeat the* Malice *and* Ignorance *of illiterate* Oppoſers: *The only remaining means, and ſtrong reſerve, by which the value of* Philoſophy, *with all its* Accompliſhments, *may receive ſuitable Acceptance and Protection.*

To which worthy Perſonages, next to his Royal Highneſs the Prince of Denmark, *together with ſuch of eminent* Quality, *who have Incourag'd the Impreſſion, is chiefly preſented the conſiderable* Importance *of this* Book: *Not doubting, that it may be inſpected, by a Judicious Eye, no leſs valuable in* Engliſh, *where it diſſents from* Des-Cartes, *than his did receive Applauſe when publiſh'd with the beſt of his* Eloquence *and* Reaſons, *in* French, *or* Latin.

Not-

The PREFACE.

Notwithſtanding 'tis very obſervable, That ſome fantaſtical Judgments *no leſs propenſely value* French Authors *than the reception they give to the Mode of Cloaths that are deviſ'd by Taylers at* Paris.

But as to the Productions *of the* Mind, *by advancement of* Science, *'tis palpably known, That the moſt* Learned *and* Accurate Productions *and* Inventions *of the* French *have not been only Equall'd but Improv'd by* Engliſh *Writers: To which purpoſe, I will, inſtead of many, Inſert a few* Examples.

Vieta, *who is acknowledg'd the firſt* Author *of the commodious Uſe of literal* Algebra, *had he liv'd contemporary with our* Engliſh Harriot, *muſt have granted, That the moſt curious* Part, *or in which conſiſts the main* Secret *of that profound* Science, *was diſcover'd and compleated by him. And ſo well perceiv'd*

by

by Des-Cartes, *that he, in the manner of a Plagiary derives the most exquisite* Part *of his* Algebraical Skill *and Process, from our Learned* Harriot: *And so publish'd to the World, in* the History of *Algebra* eruditely compil'd by *Dr.* Wallis.

To Harriot *may be added our famous* Oughtred, *whose deep* Mathematical Knowledge *and* Perfection *of* Theorems, *was never exceeded by any* French *Writer.*

In the Judgment of Vieta, *it was thought impossible, by knowing the simple* Anomaly *of the* Sun, *or* Planets, Geometrically *to find the Equated; the contrary of which is evidently prov'd by the Learned Bp.* Seth Ward *in his Book Entitled* Astronomia Geometrica.

If the Ingenious Peter Ramus *was the first Deviser of the* Analysis *in Nuubers of the* Cubick Root; *the Ope-*

ration is much facilitated by the accurate Invention of Mr. Joſeph Raphſon, *in his* Converging Series, *to his praiſe now extant.*

And what yet more ſuperlatively Exceeds to the Honour of this Iſland, *both* Ancient *and* Modern *Inventions; is admirably evident in the* Structure of Logarithms *Compil'd by the famous Lord* Napier: *By which the former Difficulties of* Mathematical Computations, *in every kind, are totally wav'd; and in their ſtead facile* Calculations *by* Logarithms, *reſolv'd with eaſe and delight. If* Philoſophically *compar'd* French *Authors with* Engliſh; *or inſtead of more,* Des-Cartes *be mention'd, according to the* Eſteem *allow'd him by ſome Perſons: The* Works *of our Incomparable* Bacon *may be Inſtanc'd as an experimental Confutation of the Failings of the other; with no leſs aſſurance, than that probable* Truth

condemns

condemns Fiction: *Nothing being more gracious in a* Philoſopher, *than a natural diſcovery of* Cauſes *and* Effects: *Or indeed, when the* Parts *of a* Naturaliſt *and* Philoſopher *are duely joyn'd: Which actually elevated the admirable* Reputation *allow'd to the* Georgicks *of* Virgil; *becauſe in them he manifeſtly diſcloſes the* Effects *and* Operations *of* Nature, *obviouſly agreeable to common* Obſervation: *And I cannot liken any* Works *more eminently to the excellency of his, than the natural manner of* Philoſophy *deliver'd by unparallel'd* Bacon.

Whereas, if we confide on the Principles *of* Des-Cartes, *we muſt rely on fictitious* Inventions, *inſtead of warantable* Experience; *as will appear by the enſuing* Remarks *on the* Parts *I Treat of.*

No Man *can doubt, that any* Thing *is more requiſite, or deſerv'dly commendable, than the Endeavours whereby to fathom*

ſuch Depths of Science, *as pertinently contribute to the profoundeſt Search and Satisfaction of the* Humane Mind: *Amongſt which, none are more conſiderable than ſuch as moſt Emphatically conduce to the Apprehending the wonderful* Manner *by which the animated* Being *and* Life, *with all their* Proprieties, *exiſt in the Body of* Man.

And what Parts *of* Contemplation, *or refin'd* Literature, *can ſo naturally enbelliſh the* Intellect, *as the rational diſcernment of the* Being *of the* Humane Soul; *and how it operatively conſpires with its* Corporeal Reſidence? *The underſtanding of which, if ſufficiently acquir'd, may be deem'd the* Quinteſſence, *or* Soul *of* Philoſophical Knowledge; *as it inſtructs us to comprehend the* Nature *of the* Soul, *that appertains to our Perſons.*

Many

The PREFACE.

Many are the Opinions of Philoſophers, *not neceſſary to be mentiom'd here, by which they differ not more from themſelves than* Des-Cartes *does from all of them, concerning the Manner of* Exiſtence *and operating of the* Soul *in the* Humane Body: *The main of whoſe* Tenent, *or* Idea, *as he calls it, is,* That the Humane Mind being a Thinking Subſtance, committed to the Body, by God, may ſenſibly apprehend Objects, without the uſe of the Senſes, or being precedently entertain'd by them: *By which Opinion of his he oppoſes common* Experience, *together with that noted* Philoſophical Axiom, That nothing is in the Intellect, which was not firſt in the Senſes.

If a Man *becomes accidentally* Blind, *there is not therefore with the loſs of his* Sight *any ſuch Curtain drawn before his* Imagination, *that totally obſcures the Memorial*

morial of Things formerly impreſs'd on his Intellect *by the* Senſes. *So that the* Maxim *of* Des-Cartes *is far more Blind, than a ſightleſs* Man; *as he ſtates his* Inference: *'Tho' upon this obſcure* Principle *he erects the main Foundation of the firſt* Part *of his* Philoſophy, *as it relates to* Humane Cognition.

Notwithſtanding, he is ſo fond of the New-faſhion'd Ideas *and* Notions *which he there not a little magnifies, that he expoſes them, (as he finds occaſion) to the view of his* Reader *in other* Parts *of his* Works, *beſides thoſe I have to do with*; witneſs the Fourth *Particular* of the Firſt Chapter of his *Dioptricks*, or of *Light* and the manner of Viſion by the *Teleſcope*, where he has this unintelligible Expreſſion: If we conſider, *ſaies he*, the diſtinction that a Man Blind, from his Nativity, can make betwixt the Colour of Trees, Water, Stones,

Stones, and the like, meerly by the uſe and touch of the Staff he walks with; no leſs certainly, than ſeeing Men can diſcern Red, Yellow, or Blew, in any viſible Object; although their differences could be no other, in ſuch Bodies, than diverſities of Motion, or the reſiſtance they make to the Blind Man's Staff.

It has been an undoubted Maxim, *That* whoſoever is Blind, is no judge of Colours: *But by the quaint* Philoſophy *of this* Author *it ſeems a reſolv'd Point, That* a Man may ſee without the uſe of Eyes: *So that a ſightleſs* Man, *who cannot make a ſafe Step without a Guide, may, if conducted to walk to the end of a Street, declare certainly of what Shape, Figure, or Colour, every Poſt is that he touches with the Staff that ſupports him.*

The PREFACE.

I confeſs, as I Read this Particular, *I expected, that he would have ſomewhat more exalted the Conceit, by Affirming, That a Blind* Man *might perfectly inſpect through the Glaſſes of the* Teleſcope, *he there Writes of; and next give an account of the Bigneſs, Diameters, and various appearances of the* Stars, *colours of the* Rain-bow, *and other* Meteors: *In* Summ, *he might have as well Aſſerted, that the* Ear *could perform the Office of* Seeing, *as by feeling it could be executed, in any kind, by a Blind* Man's *management,*

Nor leſs unintelligible is the general Definition he gives, in the before-mention'd Head, *of Colours*; which he Terms no other than various Modalities, by which they are receiv'd in Objects of Colour. *Whereas they are certain* Proprieties *inſeparably appertaining both to animated, and inanimated* Bodies; *as*

ſure

ſure as a Brown Horſe *is naturally diſferent from a* Gray, *or* Cheſnut: *And 'twere a weak* Imagination, *to eſtimate* Colour, *otherwiſe than* Nature *has appropriated it to particular* Subjects: *And whoſoever would fancy the contrary, let him try, whether he can waſh* a Blackmoor's *Face untill it becomes* White.

Another paſſage he Inſerts in the 4th Chapter of his *Dioptricks*, where he ſtates his *Idea* of the *Soul*, as a diſtinct Subſtance ſeparated from the Senſes, by ſuppoſing, that 'tis the Soul alone, and not the Body, that is ſenſibly concern'd: As he would infer from Extaſie, or diſtracted Contemplation; in which Circumſtance he conceives, that the Soul is totally abſtracted from the Corporeal Parts: Whilſt the Body remains ſtupified, or bereav'd of Senſe; no leſs than when by Wounds, or Diſeaſes, the Brain is prejudic'd.

But could be Think, that in any ſuch diſturbance of Body *and* Mind, *the* Soul *does more than live as well as the* Body; *ſince, in that condition, 'tis impoſſible for the* Soul *to act deliberately, of any* Thing, *whilſt the* Senſes *are diſabled, or not aſſiſting her* Operations? *Yet in this plight of* Body *and* Mind, he is very inclinable to determine the Soul, a ſeparate Thinking Subſtance, but incapable of ſenſibly executing her Intellectual Faculty; *which is much the ſame, as to allow her, in this Caſe, a nonſenſical* Exiſtence; *or not able to apprehend any* Object *without the concurring of the* Senſes.

This Objection *is unàeniably manifeſt; if pertinently conſider'd the main* Potentials, *by which are actually effected and compleated the eſſential Capacities of the* Life *of the* Intellect *and* Senſes, *as they animatively conſpire in the* Body *of* Man:

For

For as there are always Extant a ſufficient Quantity of the moſt refin'd Spirits, *or* Quinteſſence *naturally extracted from the* Corporeal Temperament, *and in a wonderful and indiſcernable* Method *diffus'd into the Cells and Crannies of the* Brain; *by which means,* as the excellent Lord *Bacon* obſerves, they are able to Move the whole maſs, or weight of the Body, in the moſt ſwifteſt Operations and Exerciſe: *Yet by no ſearch, or anatomical Inſpection are theſe admirable* Particles, *or* Quinteſſences *of our* Nature, *at all diſcernable: Tho' not to be denied, that they conſiſt of quantitative* Parts; *becauſe nothing but* Quantity *can operate on quantitative Dimenſions, as ſignified by* Humane Compoſition.

Wherefore, the wonderful Being *and active* Force *of the material* Spirits, *or* Quinteſſence *of the* Corporeal Temper, *can have no other apter* Epithet, *than was*

given by Democritus *to his* Notion of Atoms, which he conceiv'd by Reaſon and Experience to be Things really Exiſting, but not to be perceiv'd by the Senſe of Seeing *This* Notion *well apprehended is more than ſufficient to convict* the Tenent, of *Des-Cartes*, whereby he would define the Humane Soul to be a diſtinct Thinking Subſtance in the Body of Man, where it has Being, Action and Life; yet diſcharg'd, in point of Thought, from the Accompliſhment it has in the temperial Excellency that it admirably exerts and partakes; *ſo that, in that* Senſe, *it may be term'd the* Soul *of the* Body's *temperature.*

If at any time, the Seat of the Intellect *in the* Brain *is perplex'd, confus'd, or detrimentally wounded, or ſtupified, the* Soul *is obſtructed for want of its contiguous Paſſage in the* Nerves, Arteries, *and* Si-

news,

news, *however ſubtile the contexture which they derive from the* Brain *to the* Parts *of the Body: Which could not be, if the Soul, according to this Author*, were in Subſtance eſſentially diſtinct from the moſt refin'd Operations and Attributes, that ſenſibly emerge from the Corporeal Compoſition. *Let a Man Contemplate of any Object, or Employment of his Senſes, he ſhall find, if duely conſider'd, That in the ſame moment there is a ready Emanation of the Spirits of the Mind, to the ſame purpoſe, which are moſt contiguous to the ſeveral Uſes, Parts, and Temperatures of the Body; tho' not otherwiſe Spiritual: Wherefore, the Soul may not be improperly term'd equivalently ſuch, as by her imperceptible Eſſence, She has, in a manner, an ubiquitary Efficacy in the total Body, and every of its Parts and Members.*

If

The PREFACE.

If the Souls of all Mankind be committed to Bodies, by God, as ſo many Thinking Subſtances; it muſt neceſſarily follow, that they all had a precedent Creation; and therefore could loſe nothing of their Perfection, until joyn'd to the Body.

But if according to the Opinion *of Some, the* Soul *is traductionally produc'd, and born with the* Body, *as the diſparities and temperatures of* Men, *both in* Mind *and* Perſon, *ſeem to be exerted, either from* Affinity *in* Blood, *or parentally propagated by the Connexion of the* Bodily Parts *and* Senſes; *it muſt according to that* Tenent, *be materially produc'd.*

Wherefore 'tis far more probable, if the Soul *be granted a* Thinking Subſtance *united to the* Senſes, *by the Ordainment of the* Almighty: *Than to allow it,* as does *Des-Cartes,* ſeperately and actively intelligent in the Body of Man.

Of

The PREFACE.

Of what kind of Subſtance *this* Author *would define the* Humane Soul, *is not Intelligible from any Definition given by him; but as he Affirms it* Active *and* Motional: *And therefore conſiſting, ſuitably to his* Teuent, *of quantitative* Parts, *it muſt be Elementarily Compos'd, and conſequently* Mortal *by* Nature: *By reaſon that there is no ſublunary* Subſtance, *that has not a mutable and periſhable* Being. *So that within the* Compaſs *of the* World, *and* Courſe *of* Providence, *there is no Immortal Thing that can be, by* Man, *apprehended. Which may be naturally Argu'd* from the Doctrine of *Des-Cartes*, as it relates to the Humane Soul.

Notwithſtanding, to Improve his Philoſophical Syſtem, *I will conclude*, That as a Learned Catholick, 'twas granted by him, that the eternalizing of the Humane Soul, however Compos'd, or operative in the Body of Man, was wholly

wholly to be referr'd to the Decree of the Omnipotent.

In his Second Part, *he groſly defines and miſtakes the* Nature *of* Body, *by Affirming*, That it does not conſiſt, as as one Thing may be ſaid to be more Ponderous, Hard, or diſtinctly Colour'd than another, but as it is differently extended in Length, Breadth and Depth; *which is a very incompatible* Tenent, *or all one as to Aſſert, That* Air, Water, Man *and* Beaſt, *are no otherwiſe diſtinguiſhable, than as any one of them are heavier, or leſs than another; tho' abſolutely bereav'd of their other* Proprieties: *Which ſhews, That there is neither* Head, *or* Tail, *in the Shape of his* Treatiſe, *on this Subject.*

In his Third Part, *amongſt divers of his queſtionable* Poſitions *and* Phænomena's, *which I conceive are conſiderably tax'd by me, he does in a high degree, eſſentially*

eſſentially debaſe the conſpicuous Sphere *of* Glory *and* Light *viſibly beheld in the wonderful appearance of the* Sun; *which according to his* Definition, *is no other than a flaming* Subſtance *that flaſhingly Moves continually from one place to another within its Circumference; but with ſuch reſemblance to our common* Fire, *that it diſſolves whatſoever* Matter *is contiguous to its Movement: Notwithſtanding he would diſtinguiſh it from the* Notion *we have of* Fire, *as it is fed and maintain'd by conſuming of ſuch* Materials *as are not too hard to be diſſolv'd.*

And is not this a pretty kind of diſtinction by which he gives a different denomination to the flaming Subſtance, *as he terms it, of the* Sun, *from the combuſtible* Nature *of* Tarreſtial Fire, *tho', in effect, he grants that the* Ope-

ration *is the ſame in both: There being little difference betwixt* Doſſolution *caus'd by a flaming* Subſtance, *and burning, as* Matter *may be underſtood either way alter'd or conſum'd.*

The Fuel, on which he conceives the flaming Subſtance *of the* Sun, *to operate, is no other than, what he calls his firſt* Element, *or imaginary material* Fund, *as he determines, and orders it, of the* Worlds *original* Being *Above aud Below; So that by a thorough-pac'd fiction he Conſtitutes the* Heavens *and* Earth *materially the ſame.*

And if ſo, he muſt grant that their Subſtance *may be equally ſubject to the variable Alterations generatively, or corruptly underſtood, no leſs than Terreſtial* Beings; *which is contradictory to*

common

common Experience: *There being no ſuch etherial* Changes *as are frequently viſible in Things Below: Which is an undeniable Argument that the* Subſtance *of the* Earth *could never be derivatively the ſame with that of the* Heavens, *or originally ſo Compos'd. Of which the Reader may be ſatisfied, at large, when he Inſpects my particular* Remarks, *that confirm my general Exception, amongſt other Things, againſt* the Fourth Part of his Philoſophy, *where he makes the* Earth, *as it were, a diminitive Brat engendred by Seeds deſcending from Skies.*

To be plain, theſe Parts *of his* Philoſophy, *which Include the whole, depend on ſo many fabulous* Phænomena's *and improbable* Conjectures, *diverſly introduc'd by him, that it is impoſſible to*

apprehend any direct Foundation on which he erects the Babel *of his* Hypotheſis *in reference to the* Heavens *and* Earth. *So that it were prolixly improper, ſhould I load my* Preface *by diſcuſſing of ſuch* Particulars *that require a more ample Debate in their proper Places.*

It being more ſuitable to the Nature *of a* Preface *to intimate briefly ſuch* Obſervations *as may give the* Reader *a taſte of what he is more largely to conſider: Wherefore I ſhall refer him to my* Remarks *as in courſe they are to be Read; where I believe he may find them as pertinently Compendious as my endeavours could accompliſh, or perhaps his Ingenuity may expect.*

And for my own Vindication, I can ſincerely avow that I diſcharg'd, from my

my perusal of his Tractates, *such opinionative Reflections as usually flow from the Pens of opposite* Authors: *Being so fully prepar'd both as to the* Repute *of the* Person *and the value that I propensly allow'd to his great* Abilities; *That* I *did, in a manner, not doubt that I should be proselited by his* Principles.

But finding, upon a Mature and thorough Consideration, that his Maxims, *in divers* Particulars, *not only check'd with my* Understanding, *but also against the Proofs that might be adjusted against them: I could not but infer that in a Judicious Conception he was not the same* Des Cartes, *or* Grandee *of* Knowledge, *that had been, by many, attributed to his* Caracter.

So

The PREFACE.

So that I might well pronounce----- Quantum mutatus ab illo Hectore. *Not that I preſume on my* Succeſs *farther than he contributes to his own Defeat, by intruding ſuch* Notions, Ideas, Syſtems *and* Exiſtency *of* Things, *that could by no* Method *of* Providence, *or* Nature, *have* Being *in the* World.

Notwithſtanding all which, he confidently aſſures his Reader *that he takes himſelf to be no* Author *of* Novelties, *or* Principles *diſagreeable to the moſt famous of* Ancient Philoſophers: *Tho' palpably manifeſt that he neither mentions* Plato, Ariſtotle, *or any others of Old, or Modernly Renown'd, that he does not ſharpen his Pen to Confute: Tho' the Proofs that he offers are as far ſhort of the Validity of many of theirs, as Fiction is from beſt Probability, or*

experi-

experimental Assurance: As may be seen by some Examples *given by me.*

To Conclude, had not these Motives *prevail'd on my* Judgment, *and what is more the demonstrative* Evidence *that I have Instanc'd from Proof; I had been far more inclinable, as I consider'd, on many Accounts, the Learned Deserts of this* Author, *to have annex'd to his* Esteem *my Praise, instead of my* Opposition.

Farwel.

REMARKS

REMARKS

On the First Part of the

New PHILOSOPHY

OF

DES-CARTES.

Concerning the Principles of

HUMANE KNOWLEDGE.

PART. I.

NOTHING is more commendable then the Exerciſing of the Humane Mind in ſuch requiſite Contemplations, as moſt Effectually conduce to the Improvement of the Underſtanding in things of ſpecial Importance.

And tho' Man do's Exiſt in a World whoſe Structure is no leſs admirable to his Speculation then how he came to have Being in it, or Originally Enſoul'd above other Creatur's: Yet Nature, is no ſuch Step-Dame as not to Communicate, by her Works, ſuch plentiful diſcoveries to the Rational Faculty as have an ample perſpicuity and genuine

tendency to Improve our Apprehenſions.

A Treaſure of Science that ought to be far more valuable, by the Judicious, than an exceſs of Worldly Riches that may fill the Coffers of ſuch as are meanly Apprehenſive, or ungratefully Inconſiderate of the bounties of Providence that in a Natural Courſe Repleniſh the Earth they Poſſeſs.

So that in Effect they are no farther ſenſible of the Conduct of Nature, in whatſoever they moſt advantageouſly Injoy, then a Man might be of a tale in a Romance that Repreſents ſome, above others, Indiſcretely Fortunate. How precious ſhould then be conſider'd the deſerts of ſuch Perſons, who by their Elaborate Endeavours, and Learn'd Proficiencies ſo nearly trace the footſteps of Nature, that they render their Knowledge Approximate to her cloſeſt Receſs: Whoſe mighty Door is no way ſo perſpicuouſly open'd as by the Key of Philoſophical Science, which if duely apprehended, or more regardfully Incumbent on the Souls of Men; it would diſcountenance not a few, that out of more than neceſſary reſpects to their Worldly Intereſt and concerns of Life, bereave themſelves of time and advertency in reference to ſuch common Objects as by Ordainments from

from above have a preſent Operation on our Senſes: To which purpſe more Emphatically in the enſuing Diſcuſſions.

But here it may be obſerv'd, that notwithſtanding that by the Natural facility of Providence much is convey'd to common Underſtanding; 'tis not to be concluded from thence, that all are equally diſcernable: Which, in Effect, were to Affirm, that in the numbers of Men, every Man was alike Intelligent, or no leſs capable of Philoſophical, or Mathematical Literature, then ſuch as are Eruditely famous in both.

It being very evident, that as ſome Perſons are by Nature Exalted to predominant Accompliſhments in order to the Government of Inferiors; ſo there is an undeniable ſuperintendency conferr'd on others as being gifted from Above to be Supreame in Science, if their Superiority be Legitimately qualified. But if Arbitrary or Tranſgreſſing from genuine and natural probabilities, or methods of certainty, it then degenerat's, in its beſt Interpretation, to a ſtudied fiction, or artifice of Learned Tyranny; by impoſing, at will, on the Judgments of others.

Nor is it to be admir'd from the unwary condeſcentions of Men; that a Perſon of reputed Capacity ſhould ſubject their Opinions to the Dictatorſhip in Science that he is prone

to Attribute to himſelf: Inſomuch that the Errors that drop from his Pen, inſtead of being tax'd, find a paſſable Reception.

Whether this Reflection is applicable, as too much an opiniator, to the otherwiſe Ingenious *Des-Cartes*, I leave to a ſerious Examination of his Principles by the Reader of what here follows: Which ſhall contain the main Eſſentials of this Part of his Works I now treat of; taking due care to deliver the meaning of his Words as plainly in *Engliſh* as they are to be found in the *Latin*.

His firſt conſiderable Aſſertion is, *That in ſearch of Truth, we may not improperly doubt of the imaginary and ſenſible Exiſtence of Things*: (his reaſon is) *Becauſe the Senſes of a Man awake may err, as well as when by Dream he imagines any Thing that never had Being ſuitable to his Imagination.*

To which may be replied, That notwithſtanding that it may be granted, that both waking and dreaming the Fancy may repreſent Objects that never were truly ſuch; it being very poſſible, that a Man may contemplate on a Chimera, a Monſter, or the like, that never had Being in the World: But that being done, and the Imagination examin'd, 'twill be found, that ſuch Particulars had a precedent

cedent reſidence in the Senſes; however diſorderly or uncouthly the Figures of different Bodies imaginably appearing: For Example, 'tis impoſſible, otherwiſe, to imagine a Subſtance partly compoſed of Man and Beaſt, ſuch as the Centaurs, or other ſeeming Mixtures of Creatures which had no other riſe than from Poetical Fables: Yet theſe being ſubſtantially repreſented by the Fancy either waking, or ſleeping; the ſenſitive Part of the Imagination will peremptorily determine, That the different Shapes and Figures of any ſuch Things that the Fancy ſeems to Unite, had a precedent Reſidence in the Senſes; as their Species had been diſcernable in Part, or in their whole Shape and Figure: It being no leſs eaſie to imagine half a Man, or half a Horſe, than it is to conjoyn their Proportions by the licenſe *of Fancy as it may Intrigue with our Senſes:* So that whether this Learned *Monſieur* were *ſleeping or waking when he inſcrib'd this Query, 'tis certain, That he declin'd the ſenſible Method of his Intellect, as he undertakes to ſeparate the Mind from participating with the Senſes: Yet on this improbable Diſtinction, is grounded much of his ſubſequent Matter. Who affirms immediately after, That of Things which we ſometimes judge moſt certain, and ſuch as may be properly termed Mathematical*

matical Demonſtrations, or Principles of themſelves manifeſt, we have afterwards doubted; becauſe, ſays he, *we have obſerved ſome ſuch Propoſitions that have been erroneouſly delivered.*

But can it be argued from any Mathematical Problem, That whoſoever doubts or commits that miſtake is not therefore certain of his Senſes; which were all one as to aſſert, That he who is not Mathematically knowing (of which Science too many in the World are ignorant) cannot aſſure himſelf, that he is in any other kind ſenſible. For Illuſtration, let a Mathematical Line be ſuppoſed, and according to the Axiom of *Euclid* granted to ſignifie length, but no breadth, which may be allowed a very neceſſary and refined Maxim as being, in a Mathematical Senſe, the abſtracting of Matter from Lines conſider'd in themſelves, that in ſubſtance they may not be Part of their Meaſure: But as a Line is beheld in any kind repreſented or delineated, it is impoſſible for the Eye to perceive it in any other capacity, than as it appears to have both Longitude and Latitude; for elſe it could not be the Object of Sight, which clearly explains the Difference betwixt Geometrical Science and Senſe; the one being made evident by the Inſtructions and Rules of Practice, the other annexed as a Pro-

priety

priety to Nature; by whoſe aſſiſtance a Man may certainly be ſaid to ſee and feel tho' totally ignorant of any Mathematical Theorem.

There is nothing more evident, than that every Man is endu'd with freedome of Will, by the Conceſſion of God, and their natural Compoſitions, to imploy their Senſes in the moſt obvious and certain way of Management; but far from being alike capacitated in the Gifts and Contemplation of the Mind: One may perform whatſoever can be required from his Senſes as perfectly as another, notwithſtanding there be a vaſt diſparity in their Underſtandings; which in effect is granted by this Author, as he words the Particulars I hitherto treat of: And mentions nothing more of Moment to be obſerved, untill he comes to his ſeventh Head, where he ſtates the moſt Capital Principle, as he conceives, in order to the erecting of the Proofs he ſubſequently offers: But whether to be allowed that Validity, he ſeems to magnifie, will ſoon appear.

Rejecting, ſays he, *all Things of which we can in any manner doubt, as alſo ſuppoſing them falſe; we may eaſily ſuppoſe, That there is no God, no Heaven, no Bodies; and that we have neither Hands or Feet, or any Bodies: But not that we, who ſo imagine, are nothing; becauſe it is abſurd*

to

to conceive, That whatſoever thinks does not Exiſt at the Time of its Thinking: Wherefore he concludes, That he is, and that he Thinks, is of all the moſt certain Truth that can be acquired by Philoſophical Order.

Who would not judge, That ſo wild an Invention as this, in order to Improve Knowledge, might not rather proceed from ſome Perſon in *Bedlam*, than from *Des-Cartes?* Of whom if Interrogated, how he comes to ſuppoſe, That a Man may point blank, on the account of his Fiction, deny the Being of a God, together with all the viſible Particulars already mention'd? As to the Exiſtence of the Deity, he that conſiders the neceſſity of its Conceſſion, as he beholds the wonderful Conduct of the Univerſe, with ſo many miraculous Objects as are contain'd therein, will as ſoon give credit to any Forgery of Fables, as to doubt of the World's Omnipotent Creator. And no leſs impoſſible to acquieſce in his other Suppoſitions; there being no Body that has his Eyes to See, and Hands and Feet, can doubt, That he diſcerns That which is called Heaven above his Head, and that he feels with Hands, and treads on the Earth with Feet. But, if you'l paſs the Suppoſition of *Des-Cartes*, he will aſſure you, That both Seeing and Feeling is not ſo Intelligible

telligible, as *Ego cogito*, and *Ego ſum*: Whereas, in truth, I neither can underſtand, That I either Live or Think, but as my Senſes Conſpire with my Intellect: If not, one may as well conclude, That he may live without Thinking of whatſoever he knew before, or was ſenſibly requiſite to his Being and Life.

So nakedly has this Author ſtript the Humane Soul from the neceſſity of participating with the Body; and This he farther undertakes to Affirm by his next Step, where he poſitively expreſſes, *That there is no other Method of defining the Nature of the Mind, and its diſtinction from the Body: Adding, That it may be done by Examining what we are, and ſuppoſing all Things falſe that are diverſe from us*; whence (ſays he) *we may perſpicuouſly apprehend, That no extenſion, Figure, local Motion, nor any Thing like theſe, Attributed to the Body, could appertain to our Nature: On which account he concludes, That meer Cogitation is more to be preferred, in point of certainty, than any Corporeal Thing that could be Apprehended.*

To which I Anſwer, That had it been demanded, of this thinking Gentleman, Whether at the time he writ This Treatiſe, he did not Contemplate of ſome Bodily Notion?

For how could he Pen the Wording in any Kind of Extenſion, Figure, local Motion, or the like, and be without Thought of their Being, when he nam'd them ſuch?

Had he been in that Seaſon, to have Anſwer'd This Querie, it muſt have poſed his Contemplating in the ſingular way he propoſes. And if the Author of this Conceit could not perform what he requires, it could not be Doctrinal to others: It being as Impoſſible totally to ſeparate the Mind from the Senſes, as to think of a Non-Entity, or what has no Exiſtence; which were a contradiction to Nature and the ſenſible Impreſſion adherent to the Intellect with the Being of Things; and ſuch s cannot be apprehended by it, otherwiſe than as they are Compoſſed of quantitive and Bodily Parts.

Could I imagine another World as vaſt as This, with as many Individual Beings and Creatures of all Sorts, as are contained within the Compaſs of the Univerſe we Inhabit; I could think of no other in all its Parts, than ſuch a One, or in likeneſs, the ſame with This, that had with all its Particulars, been the precedent ſenſible Object, of my Underſtanding. So heterogeneous to the Nature of Humane

Humane Comprehenſion, is the Principle of *Des-Cartes*, whereby he endeavours to ſeparate the Imagination from the Commixture it has with our Senſes.

Theſe Diſcuſſions, if duly conſidered, are ſufficient to defeat the farther Progreſs of his Maxims; which, in Effect, will be liable to the ſame Confutation: But to give him the Scope he takes, together with the Advantage he can make by it; let us admit the Queſtion he makes, in his Ninth Particular, which he conceives very Emphatical to the purpoſe; and where he has this paſſage; ſuppoſing, by a kind of Interlude of his Fancy, himſelf to See, to Walk, and have Being, and all theſe Corporeally performed, yet makes no certain Concluſion from thence: *Becauſe* (ſays he,) *I may ſleeping think I See, or Walk, notwithſtanding my Eyes be not open, and that I move not from the Place I was in, and perhaps as if I conceiv'd that I had no Body:* All which if referred to the Operation of the Mind, whereby he Imagin'd or Thought that he ſaw and walked, he detetmines certain.

And I Affirm no leſs, if to the Imagination be annexed, the Impreſſion made in it, by the Senſes. For ſo I can Thiuk that I ſaw, or

walk'd when I Slept; which Imports no more, than that there was a Reſidence in my Intellect, conveyed by my Senſes of my Seeing, and obſerving of my walking Perſon when I was really Awake. So that it muſt be a very empty Notion to conceive, That I can be Perſonated meerly by the working of my Brain, without Comprehending any concern of the Senſes: For Example, Seeing, or Moving muſt needs have a neceſſary Relation to my Bodily Parts, and the Senſes that appertain to Motion; as I cannot move on the Ground, but as, on it, I feel I move. So that all that can be Implied from this viſionary Conceit of *Des-Cartes*, is, That the Fancy imaginarily Retain'd, what before had been actually performed by the Senſes.

He proceeds to Explicate, That miſconception, by not orderly Philoſophizing, is the abſolute Cauſe that the Mind is not accurately diſtinguiſhed from the Body.

And here, methinks, he impoſes too critical a Task to be practically Diſcharged by the common Uſe of Humane Underſtanding, conſidering how few the World affords that are philoſophically Accompliſhed, or ſufficiently Inſtructed to that purpoſe: Or if they were,

were, could they be therefore convinced, That his manner of diſtinguiſhing the Mind from the Body, is not a more refined Conceit than can be exerted by any Imagination that reſides in Bodily Compoſition? Is it not manifeſt, that Elementary Subſtances are the Ingredients of our Conſtitutions as they temper our Fleſh and Bloud? And can the Soul that reſides within their Circumference, and Acts by them, contemplate her ſelf diſcharged from them; yet at the ſame time, as is acknowledged by *Des-Cartes*, imploy her Imagination in Repreſenting ſuch Objects as could not be known to her, but as the Senſes had made their Impreſſions, on Things, on the Intellect, that in their material Proprieties and Shapes had been precedently apprehended by them: And it were unnaturally abſurd to annex Thought to any other Method actuated by the Brain of Man: It being no leſs Inſignificant to allow the Mind a diſtinct Exerciſe within the Body, the Region of her Dominion, than to ſuppoſe a Prince to Govern without the requiſite Aſſiſtance of his Subjects.

Thus far, I conceive, ſtand ſufficiently Taxed the groundleſs Miſtakes, if not Fictions

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of this Learned Author: Whoſe Defects did chiefly Emerge from his attributing to his Abilities, as if proceeding from him as the firſt of Men, that by their Grandeur could remove ſuch Difficulties, that, in their Nature, are too perplexed for the Reſolution of the eruditeſt Pen, as they relate to the manner of Being and Acting of the Humane Soul: Which if conſidered abſolutely ſpiritual; the Queſtion may be, How any Thing, perfectly ſpiritual, can be Incloſed, Actuate, and Exiſt in a Corporeal Subſtance? Since in a Philoſophical Conſtruction, nothing can act on Body, or have Being with it, in any conſideration; but what is compoſed of Bodily Parts. If contrarily, the Mind or Soul of Man, be deemed a material Eſſence, the Attribute of Immortality conferred on its Dignity by common Opinion, will be debas'd by That Definition; notwithſtanding it may be affirmed, That whatſoever its Subſtance is, or manner of being in the Humane Body; it is equally facile to the Omnipotent to eternilize its Exiſtence, as to Transform by Reſurrection, the Duſt of a rotten Carkaſs to the material Figure and Parts of the Body that had been ſo conſumed.

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In the next place he takes for granted, That the Mind may with that ſimplicity underſtand it ſelf, as it may doubt of all Things elſe.

But how can that bare Intelligence be Attributed to the Mind, that cannot by what has been before diſcuſſed, ſo much as Ruminate of any Thing of which it does not participate with the Senſes? The Reaſon he gives to the contrary, is, That the Mind finding in its ſelf many Ideas, which ſo long as it contemplates, and of nothing, without it ſelf, either Affirms, or Denies, it cannot be deceived. But can he prove that the Mind, at that time he propoſes, has no Comixture with the Senſes: The Argument he gives to make good his Aſſertion, is, *That the Mind being furniſhed with divers Notions, compoſeth Demonſtrations, to which ſo long as it attends, it aſſures it ſelf that they are true. And what theſe Ideas are he Exemplifies, by Affirming, That the Mind is repleniſhed with Ideas of Numbers and Figures; beſides common Notions, amongſt which this, that if to Equals be added Equals, there ſhall remain Equals, and the like; on which ground he proves, That the three Angles of every plain Triangle are Equal to two Right.* Which cannot be denied by any Man that underſtands Mathematical Certainties. But

But muſt every Man that Reads *Des-Cartes*, be ſo skilled in that Science as to be able to Demonſtrate, That the three Angles of a Triangle are equal to two Right Ones; which many thouſands of Men are not able to perform? And if not, they will be little advantaged by the Notions here mentioned of this Author. However, to treat him in his own Method, and for ſatisfaction of ſuch as are mathematically knowing; Can it be denyed, That taking the half of Four, there will equally remain Two: And this muſt properly ſignifie the Subſtracting from ſome Numerical Quantity, as it really Relates to its Arithmetical Proportion or Meaſure; it being impoſſible to take the half of Nothing: Wherefore the Maxim muſt have reference to ſome ſubſtantial Thing; or as the Figure of Four had been precedently ſeen, or written, to whatſoever purpoſe it might ſenſibly Relate; and if ſo, the Demonſtration cannot meerly proceed from the Mind without the concurrance of the Senſe; as I cannot tell One, Two, Three, and not be apprehenſive, that I count Something. And he that would determine to the contrary, may as well Affirm, That a Man can tell Caſh without the Uſe of

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his Feeling and Fingers; or fancy Money in a Bag and be able to compute its Summ by the notional operation of the Mind, according as it is applyed by this Author.

Who to exalt the height of his Ideas, tho' far incompatible to what he deſigns 'em, he undertakes to prove, That amongſt the Troops of Fancy, which may be exerted by the Brain, there will be found one of that ſublime Tendency, that the moſt perfect Exiſtence, or Being of a God, may be implyed by it; together with ſuch a neceſſary and eternal Being, as diſtinguiſhes it from the poſſible, or contingent Exiſtence that may be attributed to all other Things.

If This Doctrine be true; I may conſequently determine, That the Methods of Providence by which the Univerſe and whatſoever it contains Subſiſt, are but ſo many Contingencies; or that 'twas accidental that the Sun did yeſterday Aſcend to the Meridian, if not Deified by an Idea of his Exiſtence: Whereas there muſt be ſuch a determined and neceſſary Being of Providence, by the Decree of the Almighty, in the Conduct and Preſervation of the Univerſe, with whatſoever it contains, that it cannot have a Period otherwiſe than by a total Ceſſation of its natural Effects

and Operations, as ſo many Bounties conferred from above, on the vaſt Circumference of the World, together with every Individual Thing that appertains to it.

Not that it can be denyed, That by the uſual Effects of Nature, no Minute does paſs in which there are not produced Innumerable Alterations as in courſe, Generation and Corruption ſucceed one another in the various Changes of all Things that have Life and Growth: Yet, not to be implied, That by any Idea of them that can be imagined, according to This Author, is to be underſtood that they accidentally ſubſiſt, or vary in their manner of Being, which would, by Conſtruction, Impute Contingencies to the Incomprehenſible Wiſdom and Methods of Providence tending to the Conſervation and Production of Men and Creatures.

But to return to the remaining Part of his Fourteenth Particular, *where he undertakes, with ample Aſſurance, to exalt his Idea of the Being of a God, by the Proof that is to be made, that the three Angles of a Triangle are equal to two Right, from whence as a parallel certainty he concludes the Exiſtence of God ſupremely Perfect.*

But

But can it be Affirmed of any Idea, as he terms it, That becauſe it is a Mathematical Truth, That the three Angles of a Triangle are equal to two Right; that it is ſufficient to prove, from That Theorem, the miraculous Being and Perfection of Omnipotencie. And thus he again ſuppoſes, *That all Men muſt be ſo far Geometrically Knowing, or they will be deficient, or without demonſtrative Conviction that the Deity does Exiſt.*

If This Doctrine were true, it were no leſs requiſite that all Mankind ſhould have Recourſe, betimes, to the School of *Euclid*; where they might be Inſtructed as fully of the neceſſary Proportions of all the Angles and ſides of that Figure, together with what its *Area* contains in Feet, Inches, or the like; naturally and uſefully applicable to Corporeal Meaſures: Which were very diſconſonant to his Idea of any Perfection in a Triangle, as he would parallel it to the proving of the Exiſtence of the Deity; which cannot be likened to any Commenſurable Figure, or Being: Becauſe two Immenſely Infinite to come within the Precinct or Computation of Lines. And he that moſt exactly diſcerns the Properties of a Triangle, in every of its Capacities, can but ap-

ply it to Commenſurable Parts and Proportions, as before expreſs'd, and nothing more abſurd than to aſſimilate their Proofs, on any account, to the undenyable Exiſtence of the Omnipotent ſo fully evident to the Eye and Senſe, in the ſublime Wonders beheld within the Compaſs of the Univerſe: Inſomuch, That it is very Emphatically expreſſed by the Poet, where he Affirms, That God has taken care to Inform us by miraculous Mediums ſuitable to theſe Words —— *Os homini ſublime dedit Cœlumque videre, juſſit et erectos ad ſidera tollere vultus.* As much more obvious to general Apprehenſion than any Geometrical Problem. Could it be unknown to the Intelligent *Des-Cartes*, how vaſt a multitude of Humane Kind are ſcarce able to Define a Triangle as a Figure conſiſting of three Angles; and far leſs apprehenſive of the Truth of its uſeful Attributes; if not Regardleſly unconcerned, whether there is ſuch a Thing or no; or not at all conducing to the Exerting of Omnipotence? For which they conceive they are, by the Goodneſs of Providence, furniſhed with more palpable Motives: And ſuch as are approved by himſelf, as ſhall be obſerved in convenient Place.

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In the mean time he much Inſiſts on his Triangular Idea, as a Truth that gives a main Riſe to the Proof of the neceſſary Exiſtence of Omnipotence; becauſe as he Affirms, *That there is no other Idea to be found ſo abſolutely certain; and yet he Grants, in effect, That it is no more than that, in a Triangle, the three Angles are equal to two Right:* The diſparity whereof, as he renders the Application, has been, I preſume, ſufficiently noted already. Notwithſtanding, it may not improperly be farther demanded, Why a Perſon of his exquiſite Science ſhould not alledge other Mathematical Certainties, rather than fix, as he ſeems to do, on the peculiar Example he gives of a Triangle? Yet not to be queſtioned that the manifeſt Perfection of a Circle, in being a Round without any Point that can ſignifie its Beginning or End; together with the admirable Equality; not to be found in any other Figure, that every Line, as ſo many wonderful Attributes, has to each other, if drawn from its Center to its Circumference; is a more Sublime reſemblance and Proof of an Infinite Being, than is conſiſtent with a Triangle. All which, but moſt eſpecially its Circular Perfection, if conſidered by its proper Excellency,

Excellency, is no other than an Indeterminate Individual, or Geometrical Wonder, not to be Attributed to any other Figure: No Man having ever been able to give it an exact Measure, or such as may be deemed its Square; tho' the accurate Endeavour of the Famous in Mathematical Science. Whereas the Triangle is every way comensurable by the Sides and Angles it contains.

If a *Unite* be considered in its Arithmetical Capacity, it is a nearer Parallel to the proving of an Incomprehensible Existence of God, than can be deduced from the Idea he undertakes to give of a Triangle: Nothing being more admirable than the Entireness of the number *One*; in being both its own Root and Square, and also its Cube and Root; and in the same manner continues, in a Geometrical Progression, to the highest of Powers: Nor can it be wholly Divided or Substracted by any other Number: Which Excellencies solely appertain to Unity.

Yet from none of these Examples, howsoever certain in themselves, can be asserted the Existence of God by such an Idea, of any of them, as may Universally prove the necessary Existence of the Deity, both as they

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are the Truths of Science; and therefore not every Man's ſenſible Conviction, as alſo that they are only applicable to Things of a material Being; As I cannot term the Square, Cube, or any figurative Demenſions, the Comprehenſion or Meaſures of Nothing: Which, in effect, is required by *Des-Cartes, as he would Abſtract his Speculation from all concomitancy with the Bodily Senſes: And conſequently imputes it as a Fault, or Neglect in not diſtinguiſhing accordingly, the perfect Idea of God, as it Impreſſes on the Mind the neceſſary exiſtency of the Almighty.*

But the main Objection is, and far from being Anſwered by him, That the Imagination cannot be ſeparated from Objects of Senſe: For let a Man Contemplate with the utmoſt exactneſs that his Mind can afford, it will certainly terminate on one Thing or other, that reſembles Material Parts; tho' by Suppoſition as vaſtly Extended as 'tis poſſible to Imagine: Wherefore had this learned Gentleman thoroughly conſidered the Speculative Part, of his Idea, when he Inſcrib'd its Notion; as ſure as he was of Humane Compoſition, he would have annexed a Corporeal Repreſentation, in ſome kind, to what he calls his

his Idea; or he muſt, as Inſignificantly, or as near to nothing have imployed the Labour of his Brain, as if he could have Contemplated of a Vacuity: All which is equally abſurd to whomſoever will allow to himſelf the liberty of Thinking.

On which conſideration, and fully to confute his Suppoſition of bare Ideas of the Mind: It has pleaſed the Almighty by the wonderful and no leſs apparent Proſpect of the Univerſe, with every Thing contained within its Boundleſs Complex; to convince us, That nothing is comprehended by it, but what may imply the Denomination of Corporeal Miracles: Yet ſo admirably different, that what is of Elementary Form and Subſtance, within the Reſidence of Earth and Air, ſeems perfectly diſtinguiſhed by the manner of Being and Eſſence, of the Sun and Stars, tho' of Bodily Reſemblance: Yet none of them have other appearance, in the moſt Refined Conception we have of their Natures, than Objects of our Senſes. And tho' the Original of the Univerſe, or the Individuals it Comprehends, be not manifeſt by any external Aſſurance; 'tis perfectly evident, That they had a Beginning from an Omnipotent Cauſe; by reaſon that our not

not knowing how they had Primitive Exiſtence; is an undeniable Conviction, That in being Miraculous to our Underſtanding, or as ſo many Actual Works, wonderfully viſible; they could not be produced, or continued, otherwiſe than by an Omnipotent, Incomprehenſible Will and Providence. So far does the Obſervation of admirable Facts, that by Divine Conduct are openly expoſed to the Eyes of our Reaſon and Senſe, exceed the moſt Refined Dictates of Science; as they direct the Sublime Aſcents of our Conceptions by a more exact Progreſſion, than Geometrically can be given to the higheſt of its Powers. How impertinent is it then to depart from the Road of Common Senſe, by ſuppoſing ſuch an Idea in the Mind, as from any Mathematical Problem might guide us to the Proof of a Deified Exiſtence? tho' contrary to the palpable Method of the Omnipotent, Ordained by the Miracles of his Works: *Which enormous Miſtake is evidently This Author's, in a great Part of his Treatiſe, as he mainly endeavours to Parallel his Demonſtration of the Exiſtence of God with Mathematical Certainty.*

Which Science, tho' above all to be preferred, for the Dignity of its unerrable Maxims,

and particularly ſo eſteemed by me: Yet I cannot but judge it Incompatibly applied, even by this learned Author, to the purpoſe he would intend it; and deſerves a Remark accordingly.

He yet farther proceeds to heighten his Notion of Ideas; amongſt which he ſelects the Idea of ſomething moſt exquiſitely perfect; by which he would have underſtood the neceſſary Exiſtence of God. I will favour the Ambiguity of his Expreſſion ſo far as not to believe, That he meant by his Idea a neceſſitated Exiſtence, which could imply, that the Deity had an Exigency of Being from ſome other Thing: Becauſe, whatſoever is neceſſitated cannot have, of it ſelf, an entire voluntary Exiſtence; or, as one Cauſe might Neceſſitate the Being of another; which cannot be applied to Supreme and Infinite Perfection. Nor was it poſſible for him or any Man to Imagine, by the moſt Refin'd Contemplation, That the neceſſary Exiſtence of God can be more clearly underſtood, then by the Actual Proſpect he has given us of his All-Sufficiency, and wonderful Providence annexed to the Conſervation of the Univerſe, and All it contains. And if otherwiſe Interpreted, the

Being

Being of God, as ſeparated from the Miraculous Proſpect and Munificence we actually receive from the excellency of his Works, that fill the World we Inhabit: Were in effect to Attribute to the Deity a ſolitary Exiſtence, or not the Author of the Innumerable Effects of Infinite Goodneſs that have an Emanation from him. So that 'tis not any Idea, of neceſſary Exiſtence by which God can be apprehended; but rather the neceſſitated Being that the Total Comprehenſion of Heaven and Earth does receive from his Ordainment.

Which appears to be very ſignificantly the Senſe of This Author; as upon farther conſideration he thickens his Idea in his 17*th Particular, where he has this Expreſſion: If any Man has the Idea of a Machine, or Fabrick produced by moſt curious Artifice, he will concede, That it Merits the utmoſt Inquiſition of his Thought, whereby to be Informed of the Authentick Cauſe by which it was ſo accurately Effected; and ſuch as could by no Device, or Humane Skill, receive Perfection.*

What could theſe Words Import, other than his ſubſtantial Idea of the Conſtituted Being and Conſervation of the Univerſe, in Reference to God the Author?

And having added to his Idea, the weighty Conſideration of the World's Exiſtence, he might well acknowledge, That it is the ſubſtantial Union of Matter and Form, that gives admirable Subſiſtence to every Individual Thing, Circumſcribed by the mighty Univerſe; wherein is viſibly preſented, by the wondrous Proprieties of Compoſition and Conduct, an Incomprehenſible Founder.

Which Perfections not to be Imitated by any Parallel Structure, or performed by Humane Induſtry or Art; he fully annexeth to their Excellencies, the neceſſary Dependency and Manifeſtation of Omnipotent Power. By which Method, according to the ſoundeſt Speculation of *Des-Cartes*, may be perſpicuouſly Exerted the otherwiſe Indefinable Being of the Almighty: Becauſe, as he grants, the Extent of Humane Compoſition, in Soul and Body, cannot farther Aſcend than by Objects of Senſe, or ſuch as have viſible Limitation, to the Admiration, tho' not to the perfect Definition of their ſublime Cauſe; which can be no other than God as far exceeding all Imaginable expreſſing and height of Rational Accents.

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And is not this Doctrine more readily apprehended by all that may, (if they pleaſe) be ocular Spectators, or by any means ſenſible Diſcerners of the Works of the World, that, by Omnipotent Appointment Surround them above, and below; than from the dry Idea of a Triangle, whoſe three Angles amount to two Right: And from thence deduce the Truth of God's neceſſary Exiſtence; which if poſſible, by Mankind, ſo to be Demonſtrated, 'twere no leſs requiſite for Women than Men, to be able to Reſolve the Problem; if they would Aſſert their Belief of the Being of a Deity: It being highly neceſſary, in order to that eſpecial Concern, that there ſhould be a ſufficient Number of Female Geometricians: Which I confeſs might add Certainty to their Inſtructions, tho' not otherwiſe Divine, when they Preach in the Society of *Quakers*.

Wherefore I may well admire, That ſuch a Confuſed and Impracticable Principle ſhould be entangled, by this Author, with Mathematical Verity; of which Science he had, as to other Uſes, a Learned Accompliſhment: It being his real miſtake, or too much Curioſity, where he undertakes to Confirm, by a Mathematical Inference, That God does Exiſt;

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inſtead of the open Evidence, that is viſible to Mankind, from the Miraculous Conſiſtence of the World, and the Works it comprehends. Wherefore 'tis judiciouſly Affirmed by Incomparable *Bacon*, That he had rather be Impos'd on by the *Jewiſh Talmud*, or *Alcaron*, then deny, That the Univerſe, with whatſoever it contains, is without the Rule of a Mind, or, which is all one, the Sovereignty of the Deity.

But the Authority of this Quotation, together with the Reaſons I have before Inſerted, are very diſagreeable to the Mental Idea of *Des-Cartes*, *by which he rather Infers the Being of the Deity by his Notion of the Structure of the World, than by the Proſpect we have of its actual Conduct and admirable Compoſure. On which he grounds this Interrogation*; *from whence* (ſaies he) *had any Man Being, that has an Idea of God's Perfections, unleſs from ſomething more perfect than himſelf*? Which doubtleſs is true, if underſtood of the apparent means deſcribed in the wonderful Figure and Facts comprehended by the Univerſe, as the Effects of an Omnipotent Cauſe. And thus may Thought aſcend, by a miraculous Scale, to the acknowledgement of the Immenſe Power and Providence

dence of God actually manifeſt by Works. But not as this Author Affirms, *From being as he calls it, naturally Enlightned or Capacitated from a meer Idea of the Mind, whereby to conclude, That Man has a preſent, or primitivitive Exiſtence from any Thing more perfect; as he Inſinuates*: Since 'tis very poſſible, That from an Idea, more natural than his, may be Imagined that Humane Compoſition and Life, might be produced in a Courſe of Nature, which ſome have been prone to Determine, from Materials very much inferior to the Subſiſtence of Mankind, either in Soul or Body.

And this is frequently diſcernable as from Elementary Commixtures and Operations, Animals proceed from Vegetables, and the contrary. Inſomuch that *Ariſtotle*, in his laſt Chapter, *of the Generation of Animals*, conjectures; That the Origine of Men as well as other Creatures, might have in Time paſt, an Earthly Production; and which he in another Place, ſuppoſes, by a long backward Computation of Time, to have probably been an Artifice of Nature heretofore known and omitted. Yet none of theſe Methods, however they were, but muſt have had the allowance of Providence, without which

which there can be Nothing, in any kind, compleated. Notwithſtanding, it cannot be Affirm'd, with *Des-Cartes*, That although we have not, as he alledgeth, Being from our ſelves; 'tis no aſſurance, That we can derive our immediate Exiſtence, from ſomething more perfect than our Natures: Which if an univocal Truth, relating to God, the moſt Supreme and Perfect of Beings; it may be objected whether ſo many Imperfections as are naturally Adherent to our Compoſitions, could be conſiſtent with any Perfections that were beſtowed by the Almighty; or by which we muſt not have been more excellently temper'd in the beſt of our Faculties, than really we are: If not every Individual of Mankind equally perfect in all Parts of Knowledge, had the Humane Mind been ſo commited to our Bodies by Supreme Allowance: The contrary of which may be Aſſerted from Common Experience; as ſure that Particulars of Mankind are not more different in their External Features, than they are in the Internal Proprieties of the Soul.

However *Des-Cartes* is pleaſed ſo far to Diſſent from the Univerſal Sway of Experimental Science, that he undertakes to Philoſophize againſt

againſt the Rules, and Dictates of Nature, by deviſing of Principles whereby he would totally ſever the Mind from the Body: And with that Parity too, that he excepts no Imbecillity incident to Sex and Age; if the Mind be clearly evacuated, by a Doſe of his Idea, from Corporeal Thought, ſhould it tend to the Soul of Being, Operation and Management, that is ineffably conferred by Providence on the Works of Nature: Yet all theſe mighty Limits, howſoever appearing providentially impaſſible; muſt be ſo refinedly penetrated by his Idea, that it may not encounter a Subſtance, tho' no groſſer than the leaſt Particle of *Epicurus*'s Atoms. But how to fix the Imagination on any Thing of Infinite Perfection, ſo as to ſurpaſs the Boundaries of the Univerſe; and in that vaſt Journey of Thought, exempt from the Intellect, all Bodily Perception; were no leſs abſurd than the Epithete of an Incorporeal Phantaſme: Which every Man that does Think, either Sleeping, or Waking, may ſenſibly confute: It being impoſſible to imagine, by any ſtrength of Thought, the Perfections of God farther than our Compoſitions of Body and Soul, are capable to extend.

Yet this manner of Humane Intelligence, is so peremptorily thwarted by the Suppositions of this Author; That he undertakes so to dis-joyn the correspondency that the Intellect has with the Senses, That, according to his Maxims, Men cannot be assured, that either God or their Souls Exist; if their Imagination be not very singularly applied by expelling at pleasure, all conception of Bodily Objects; or that there is any such Thing as Corporeal Residence, or Motion; or that the Heavens are Repleniſhed with Stars; or that there is Earth, or that Men have Bodies and sublunary Existence; or at most but Moral Certainties, That we sensibly perceive, there are any such Things: Unless by his manner of Idea, the Mind may be so strip't from its Corporeal Appurtenances, That it may Reign with such simplicity in its Kingdom of Thought, that it may have nothing to do with Dominion over the Senses, or Body wherein it has Being. On which distinct Method of Thinking he conceives does depend the Natural Propriety of the Soul, as it may, by Imagination, be separated from the Body. To come therefore to the Improbability of his Assertion: Let it be granted, That he, or any other Man, could

could reject by Speculation all Bodily Particulars that are viſibly and ſenſibly perceived within the Compaſs of the World; were it poſſible, at the ſame time, to entertain Thought by no Repreſentation of other Things of a Corporeal Nature; which would amount to the creating of Thought ſomewhat more Fictitious than when enſoul'd by Poets their Invention of Gods and Goddeſſes: Becauſe they did not tranſport their Fictions beyond, or without the reſembling of Something in Being before. But exceeded by the Imaginary Suggeſtions of this Author, who gives no riſe to his Thought from any Thing by likeneſs precedently known to himſelf, or any Body elſe: Yet from this pure Conceit does he argue the clear Exiſtence of the Humane Soul, and the Knowledge that it may perfectly have of the Being of God.

I ſhould not have made this Diſcuſſion here, being much to the purpoſe of which I have already Treated; had not Occaſion been given, by what ſucceeds, ſo far to Impreſs, its neceſſary Reiteration.

To proceed therefore with him to his 21 *Particular*, where he undertakes to prove, *That from the Evidence we have of Something more*

perfect than our ſelves, we may clearly determine the manner of our Duration, and Temporary Continuance; as alſo the natural Subſiſtence of all other Things; becauſe, as he alledgeth, *no ſuch Particulars depend on themſelves.* Which is a clear Truth, if he would intend by his Notion the Intermediate Conduct of Providence in the Modalities, Production and Conſervation it gives, in a uſual Courſe, to Things within the Boundaries of the Univerſe. In which may be diſcerned, That ſome Individuals are more or leſs durable, or ſubject to Decay, Alteration and Periods of their Exiſtence: Yet all theſe Varieties are not openly to be underſtood otherwiſe than, in a natural Method, they may be Effects of Elementary Operations; and this is no leſs than experimentally certain, as ſure as there is Heat, Cold, Dryneſs, and Moiſture: And conſequently, the Ingredients of Bodies as they have temperatures from them; which is notoriouſly manifeſt in the Complexions, Diſpoſitions, and Tempers of Men and other Creatures. But without theſe neceſſary Mediums, to lift up our Imagination, after the manner of his Idea, to a meer Notion of a ſublime Cauſe that gives Being and Conſervation to all Things; were to depart from the immediate

immediate School of Providence, by undertertaking to be our own Inſtructers of what we cannot without its natural Information, by any contemplative Thought, or imaginary Speculation, howſoever Refined, poſſibly apprehend. Yet on this incomprehenſible Way of Thinking, is generally Erected the main Fund, and Tendency of his Principles, whereby he undertakes to Improve Humane Underſtanding.

I find nothing more Intervenes, in this Part of his Treatiſe, that requires in Subſtance any farther Remark: Wherefore to avoid Repitition, I paſs on to his 25th Head, where he has this Expreſſion.

If God, from himſelf, or others, Reveals any Thing, that exceeds the genuine ſtrength of our Underſtandings, ſuch are the Myſteries of the Trinity, and Incarnation of Chriſt, We ought not to refuſe their Belief; nor admire, That many Things are both in the Immenſe Nature of God, as alſo in thoſe created by him, that ſurpaſs our Capacities.

All which I readily acknowledge, tho' I cannot but admire, that ſo ſpeculative a Perſon as Monſieur *Des Cartes*, ſhould not annex to his Belief of this Three-fold Myſtery, the admirable

mirable facility of Providence, by which the moſt Eſſential Part of That ſtupendious Article of Humane Faith, comprehended in Chriſt the Second Perſon in the Myſterious Creed of Chriſtianity, is ſo far, for our more ſenſible Conviction, of familiar Reſemblance to the Works of the Omnipotent, as they are compoſed of Bodily Life and Figure, relating to Man and Creatures; that by this Diſpenſation the Redeemer of Mankind is repreſented in the Form and Subſtance of Fleſh, as the moſt captivating Object of our Devotion and Senſe: It being impoſſible to conceive, how any Idea of Worſhip can ſo Myſtically faſten the Mind, that it may be totally barr'd from Conſpiring with the Senſes in the admittance of Corporeal Objects. Which may be no inconſiderable Reaſon, why Chriſtian Profeſſion has allowed the Repreſentations of the Paſſion and Reſurrection of Chriſt, to impreſs their Memorial on the Heart of the Believer.

How little does the manner of this Author's Idea, ſo magnified by his Pen, conduce to the proving, That God does Exiſt; or that the Worſhip of Chriſt, otherwiſe than a Miraculous Work, proceeding from Omnipotent Power,

Power, ſhould be the Object of Humane Devotion? With this Diſtinction, That although every Fact of the Almighty comprehended by the Univerſe, be equally wonderful; we are obliged, by Precepts, to pay the Duty of our Souls to no other than Chriſt.

Which this Author ſeems to acknowledge, where he excepts his bare Idea, of the Being of a Deity, from the ſtupendious Co-exiſtence of God in the Subſtance of Fleſh: As if but beholding to his Speculation for the Belief of the One, and to Religion for the Other. From whence it may be concluded, That it was the Deſign of *Des-Cartes* to decline the common Road of Providence, in hopes to be celebrated for a ſingular Conceit of his Brain, whereby he would Inſtruct others to believe, That the Method of God's Works, tho' as broadly viſible as the Features of the World's Face, were too narrow to exert from them, his Idea of the Almighty. Becauſe, as he Affirms, *'Tis poſſible to Imagine, That there is no Heaven, no Earth, no Bodies of Men; and yet by a naked Idea, in the Mind, be aſſured, That God does Exiſt, tho' none of his Works had Being at all.*——

But

But Paſſages of this Nature, having been precedently taxed, the Reader is referred to them.

The next Point that he comes cloſe up to, is, *That we ought not to weary the Brain with diſputing of what is meant by Infinite: Becauſe he judges it abſurd in Man, who is of a Finite Being, to determine any Thing of an Infinite.*

To which purpoſe he gives ſeveral Inſtances; *As the vain Diſcuſſion, or Quere, Whether if a Line be ſuppoſed Infinite, the middle Part of that Line be not alſo Infinite? Becauſe, with ſuch Things,* (ſaies he) *we ought not to be concerned, unleſs we Judge our Mind alſo Infinite.*

Which I fully grant Judiciouſly Adviſed: But find it very diſſentaneous to a main Notion of his, formerly mentioned, whereby he Affirms, *That 'tis very facile by a meer Idea of the Mind, tho' acting within the Limitation of the Body, to imagine the Infinite Exiſtence of the Deity, by no other Speculation than may be made on the Wings of Thought, when on its Contemplative Journey.* But how to be clear from all Corporeal Impediments, both within, and without the Body, notwithſtanding he here allows it confined to a Finite Imagination; appears

to

too like a Contradiction, in the Terms he delivers; or which is much the ſame, that in one Place, of his Writings, he ſpoke of an Infinite Idea, and of a Finite in another: How therefore to reconcile him to himſelf, on that account, is not to be apprehended.

And this may be aptly Inferred from what he adds in the Paragraph I treat of, where he Affirms, *That no Extenſion can be Imagined ſo Vaſt, that a Greater cannot be given*; which is as numerically certain, as that *Archimedes*, by ſixty three Cyphers and a Unite before them, produc'd a greater Number than could be Equalled if the Total World from the Center of the Earth to the Sphere of the fixed Stars, were Repleniſhed with the numerous Particles of Sands of the Sea. If Thoughts could be Multiplyed ſo as they might exceed the Summ before mentioned, as many more might be added to their Number: Yet every particular Thought would be ſeverally terminated by ſome Object of Senſe. On the contrary, the Notion of Infinite may rather paſs for a manner of Speaking than actually explicable by the Humane Intellect: And thus Immenſe, Infinite, and the like, are attributed to God, not as their meaning is otherwiſe

to be underſtood than as they have Reference to the Works of the Almighty; of which, becauſe no account is to be given how they either began or are continued; our higheſt Admirations, not to be expreſſed by Accents of Speech, ought to exalt our Wonder, Incomprehenſibly annexed to a Word of Infinite Denomination.

And this, in Subſtance, he ſoon after concedes; where he holds it very adviſable, *that we ſhould not Inquiſitively Reaſon of Natural Things, or the End to which they are Ordained, farther than God and Nature have Conſtituted and Propos'd them to our Obſervation, leaſt we ſhould ſeem to arrogate to our ſelves any participation with his Counſels:* To which he judiciouſly adds, *That God is to be acknowledged the Efficient Cauſe of all Things, yet ſo, as that he has not extinguiſhed the Natural Light of our Underſtandings in being familiarly acquainted with ſuch Attributes and Effects of his Omnipotent Power, as he has manifeſtly expoſed to our Apprehenſions:* All which are undoubtedly requiſite to our Duty.

But how does this concenter with his ſingle Idea of God, as here he requires the concurrence of our Reaſon and Senſes, to the uſeful

ful Expoſition of ſuch Objects as are manifeſt to us?

And what can be implyed from thence, other than that the abundant Operations and wonderful Effects of a Supreme Cauſe are evident in the apparent Being and Works, within the Compaſs of the Univerſe, that muſt neceſſarily depend on it; without which it were impoſſible for us to have the plenitude of a ſenſible Conviction? Inſomuch, that I think it not improper to inſert the Opinion of certain a Aſtrologer; who Affirms, That if the fixed Stars had not a conſtant Diſtance, or that the Diurnal Motion of the Cœleſtial Sphers did not perpetually move in Time, no Individual Thing would laſt a Moment; which Notion, of this Aſtrologer, if but conjecturally Allowed, has a far more ſignificant Relation to the Proof of the Exiſtence of God, as a Supreme Cauſe, than can be appropriated to any Idea of the Mind that abſtracts the Immenſe means and Facts of Providence from the obvious Concurrence they have with our Contemplation of the Being of the Almighty, and the ſuperlative Diſpoſer of whatſoever we can behold, or Imagine: And I ſhould be glad if the contrary had

not been the miſtake of the Learned *Des-Cartes.*

His next Conſiderations is, *That God is ſupremely True, and the Illuminator of our Underſtandings; and therefore cannot deceive us, or at All the Cauſe of thoſe Errors that we are of our ſelves obnoxious to.* Which is undeniable, if by the Enlightning of our Minds, he means the Conviction we have from the Works and Operations of Providence, that conſpicuouſly aſſure us, That Omnipotence is their Supreme Cauſe and Author. But if he explains fully his meaning, as he ſeems to do, by what follows in his next *Particular*; his Senſe is, *That if we have a clear and diſtinct diſcernment of any Object, by the Faculty of Knowing given us from God, we cannot be deceived.* Inſomuch that he Affirms, *That God were a Deceiver, if he had beſtowed on us a perverſe and falſe Conception of Things, inſtead of a true One.*

If This Opinion of his were ſound, and that God had ſo impowr'd the Humane Mind, that it could, of it ſelf, ſerenely diſtinguiſh Truth from Falſehood: What Reaſon can be given why All Men ſhould not equally be perſpicuouſly Intelligent, as moſt ſuitable to the Capacious Munificence of the Almighty? And

And conſequently every Man's Reaſon and Senſes irreſiſtably compliant: Since 'tis not Imaginable, That ſuch a Gift, Authorized by God, could be leſs than Univerſal and perfect, as it muſt needs affect the Underſtandings of All Mankind; and next compleat an Equality of Knowledge and Goodneſs, with all other requiſite Endowments of the Soul: The poſſibility of which is ſtrenuouſly aſſerted by this Author in his 30th *Particular*, where he Affirms, *That theſe admirable Gifts may be accompliſhed as well Sleeping, as Waking, if duely adverted how our clear Thoughts may be diſtinguiſhed from ſuch as are confuſed.* Which Direction of his, if rendered practicable, would amply tend to Humane Felicity, by cleanſing the Minds of Vicious Perſons, Fools, and Knaves; nay, abrogate the uſe of *Bedlam*, by a *Recipe* from the Pen of *Des-Cartes*: Who Affirms, *That 'tis but being thoughtfully Induſtrious and Imaginatively ſeparate, either Sleeping, or Waking, the Purity of Thoughts from ſuch as are confuſed.*

But were it Interrogated, Whether any Sorts of Men, (before mentioned) ſince none are excepted by him, might not Aſſert, with as much Confidence as he undertakes to direct them;

them; That they had either Dreaming, or Waking, a clear Idea of Truth, in one Kind or other; which could not be miſtaken if avowed by them that the Notion was clear and diſtinct, and therfore perfect? Becauſe not otherwiſe, as he alledges, *the Gift of God, whereby the Mind of Man, is Enabled to ſeparate, by pure Imagination, Truth from Falſhood.*

If Diſtinction of Thought, from Thought, by any Power of the Mind, can be termed a certain Repreſentation of Truth, and principally meant of God, or whatſoever is ordain'd by him; it muſt as has been already proved, be grounded on ſome admirable Proſpect of the Works of the Omnipotent, and thence conclude as a mighty Truth, That he wonderfully Exiſts, or it could fix on nothing.

In Summ, ſhould a Man endeavour to Refine the cleareſt Conception that he could poſſibly have of a Spiritual Exiſtence, his Imagination might not be ſo Immenſely dilated as to meet with no Corporeal Stop from the prone Concurrence of the Intellect with the Senſes, and the familiar Admittance that is yielded, by the Mind, to their Objects: Yet ſuch a Man might aſſure himſelf, That he as certainly

certainly diſcerns the Truth of Bodily Objects Entertained by his Imagination, as can be pretended, by any Method of Thinking, preſcribed by this Author.

And thus 'tis too commonly the Fate of many to be ſeduced by the over-curioſity, and ſearch made by particular Perſons who would build their Eſteem on the Novelty of their Tenents; the uſual allurements of Inconſtancy in the Humane Soul: Till rejected by Time they are held no farther uſeful than Almanacks out of Date.

Whether the ſame Succeſs may not be expected, relating to ſome Parts of the Writings of *Des-Cartes*, where he undertakes to Improve Knowledge by Methods more Conſonant to Fiction than Science, not a little to the diſrepute of, otherwiſe, his vaſt Abilities; I leave to the Reader to determine.

In his 9th page, he gives us this Caution, *That notwithſtanding God can be no Deceiver, yet, frequently it happens that we deceive our ſelves*; which is no leſs Divine as to God, then certain that Mankind are diverſly Erroneous; as more or leſs their Frailties are incident to their Diſpoſitions and Natures.

But

But if granted according to his often repeated Maxim of Humane Knowledge, That Perfection of Thought is so clearly applicable to the Humane Mind, that the cumber of sensible Objects, may, by Idea, be totally emptied from it, and nothing remain but perfect Intelligence: How, according to that Tenent, can he Affirm, That the Mind does admit Deception? If suitable to his common Notion, not seldome Instanced by him, the Mind may be so notionally and wonderfully Illuminated, that it cannot be without Certainty; because its perfect Apprehension must be given from something more perfect, which is God: And no Body can think otherwise, if the means, that God has Ordained by his Works, be regardfully considered; On which account, 'tis not to be understood, how his manner of Thought can have else any contiguity with our Reason, or Senses. And which, I suppose, has been enough before Confuted. In his following Words he endeavours to be plainer understood by granting, *That in the Intellect is Volition, as well as Imagination, which by its Impulse on the Humane Mind, renders it erroneously obnoxious.* But can it be consistent with the Notion, so much applauded by

by him, of a perfect Idea of Truth eſſential, as he defines it, to the Humane Mind, and notwithſtanding that Perfection, to admit the poſſibility of being Impoſed on by the Will: Is, in effect, to acknowledge, That there is no ſuch perfect Determination in the Mind whereby to diſtinguiſh Truth from Falſehood; or if there were, how can it be ſuppoſed, That the Certainty of the Imagination, when filling of the Mind, would not ſubject the Will to the reality of Truth conceived by it? Which to deny, were no leſs abſurd than to Aſſert, That the Soul, by its own conſent, did Rebel againſt its main Prerogative, and Renounce the higheſt Propriety of its Dominion: So that no Notion of Truth, in a Natural Courſe, can have any ſtedfeſt Aſſurance in the Mind, if lyable to the Refractory Contradiction it may have from the Will: Inſomuch, That had he named the Notional Idea, he ſo much contends for, an Irreſiſtable Inſpiration; he muſt have been more Divinely underſtood by his Reader: By which he might have inferred, That by a zealous Contemplation of the Mind, there would have been wanting no perfect Certainty or Conception, of all Matters tending to Holy Religion and Life:

Things very neceſſary, and exceedingly conducing to Univerſal Satisfaction and Repoſe of the Soul, if ſuch an agreeable and unerrable Idea could manifeſtly have Iſſued from the meer Reſult of Thought; without being beholding to any Intermediate Work, or Conduct of Providence to ſublimate the Speculation. But enough has been before Inſerted, in Oppoſition to the manner of Thinking, preſcribed by his Pen; and for which, as his main fund, he requires no more than that a Man ſhould Imagine, That there is ſomething, in being, more Perfect then himſelf: All which he aſſures might be accompliſhed by all Mankind, as a Gift, from above, conferred on the Soul; did not the peremptory Sway of the Will reſiſt the clear diſcernment of Truth Inherent in the Mind. For whoſe ſingle and unconfinable Perfections, notwithſtanding he had averred them before, he ſoon afterwards acknowledges their Limitation in theſe Words.—— *The Intellect*, (ſaies he,) *extends its preception but to few Things offered unto it.*

What he would mean by Things offered unto it, unleſs actual Objects, is not to be underſtood; neither does he ſignifie how he would otherwiſe be apprehended by the Expreſſion;

Epreſſion; which can have no numerical, or ſpecifical Conſtruction, except he had Nominated any real Thing or Object repreſented by the Imaginary Faculty of the Mind. From whence it may be concluded, That, he does, in this Place, in his own terms, however diſſentaneous to what he had formerly Aſſerted, enough concede, That there can be no other than a limited Idea to Things conſiſting of Matter, Form, and Bodily Parts: It being no leſs Unnatural than Impoſſible, That the Intellect ſhould, at one Time, be converſant with Objects of Senſe, and at another, be wholly intent on meer Speculation without them.

Yet he undertakes to Inform, *How this unnatural repugnancy of Thought may paſs on the Authority of his Tenent; by Impeaching of the Humane Will, for Arbitrary Compelling of the Mind to be Confuſed and Finite; whereas it would otherwiſe diſtinguiſh by clear and diſtinct Certainty whatſoever was imagined by it.*

And yet he could not but know that it is Inconſiſtent with the Eſſential Method of Rational Underſtanding, to averr, That the Judiciary Part of the Mind can be ſo compulſively managed, or ſtreightned by the Will: Notwithſtanding that the contrary is far more

Intelligible, in reſpect that there can be no actual tendency of Thought, in the Soul of Man, but muſt have a neceſſary Conſent of the Will: It being abſurd to Imagine, That a Man can Think of any Thing without its Aſſent and Concurrence; which were no better Senſe, than if one could be ſaid to Think, and not be a voluntary Thinker.

If duely conſidered, the Faculties by which the Underſtanding is compleatly Executed; 'tis very demonſtrable that the Mind is not more Annexed to the Will, than furniſhed by the Memory; whoſe Office is to keep the main Records of the Soul, and from their numerous Catalogue preſent ſuch Memorials as are occaſionally proper to Attract the complyance of the Underſtanding and Will. There being no real Thought on whatſoever Object imployed, other than what has been, in Subſtance, or Similitude, by the Memory precedently retain'd.

And therefore unwarrantably Aſſerted the Suppoſition of this Author, whereby he would Inferr the ſeparate Actings of the Faculties of the Soul, or the poſſibility of clear Perception without their Concurrence.

True

True it is, that Humane Underſtanding is too frequently Sway'd, Impedited, and Corrupted, by the impetuouſneſs of the Will, as it conſpires with the Appetite and Senſes, which by their plauſible, and importunate Temptations, ſo prevail on the Underſtanding, that its Rational Excellence is, in many Kinds debaſed, as it allows their Senſual Admittance; but ſtill no otherwiſe than as it conſents with the Will: And therefore not, truly inferred by this Author, that the Intellect is ſo wildly guided, and impoſed on by the Will, that it abſolutely reſigns, or deſerts its Rational Throne; or any clear Intelligence that by the Gift of the Almighty is naturally Inherent in the Mind of Man: But rather betrayed by the Treachery of the Will and Senſes, to impare by its frail complyance the requiſite Intelligence and Prerogative that ought to be inſeparable from its Supreme Dominion.

Wherefore this Learned *Monſieur*, after he thoroughly labour'd the moſt conciſe Criticiſms of his Brain, by endeavouring to prove *That the Faculty of clear, and diſtinct Perception was Inherent in the Mind*; He does notwithſtanding acknowledge, in divers Paſſages of the Treatiſe I deal with, *That the Mind cannot*

ſo

ſo exert its Juriſdiction as not to be Perplexedly, or Confuſedly prevailed on by the Will: Which he fully Attributes to the Inveiglement of the Underſtanding cauſed by the Conſpiring of the Will with the Senſes, and the natural Freedome by which it Operates on the Intelligent Capacity of the Humane Soul: Which is, in Subſtance, the compleat Senſe of ſeveral *Particulars* Written by him; but moſt eſpecially in his 38 Head, where he grants, *That the perſpicuity of Diſcernment conferred on the Soul, by Divine Appointment is no farther Abſolute than as it meets with a voluntary Aſſent, by which it is either made our perfect Apprehenſion, or on the contrary, evaded by the Actual Freedome of the Will*: For which he gives this Inſtance, in this manner Embelliſh'd; *The Will*, (ſaies he) *together with the Senſes, ought to compleat the Allegiance they owe to the Sovereignty of the Humane Intellect, as God's ſelect and natural Vicegerent over the Body and Members; which being frequently violated by the irregular Conduct of the Will and prevalent Complyance it obtains from the Appetite and Senſes; the genuine Duty is renounced that ought to be perfectly paid to the native Monarchy of the Mind; and inſtead thereof, a Foreign and Senſual Uſurpation raiſed by the confus'd Mobile of the Senſes.* This

This Paraphraſe may be Emphatically allowed on his Words; nor can it be denyed, That the excellent Faculty, with which the Underſtanding is imbued is not by innumerable Depravations erroneouſly miſguided by the pronenes of the Diſpenſation it gives to the Importunate Senſualities Incident to Humane Conſtitutions: Which is very manifeſt in the different Qualifications and Tempers of the Body and Mind; as by common Experience, ſome Individuals of Mankind excell in Prudence and Moralities of Life the Diſpoſitions of others. Inſomuch, that it may be queſtioned, Whether, or no, from a Natural Courſe of Providence the different temperatures of Body and Mind do not proceed? And therefore more prevalent, if not hardly to be Reſiſted.

All which, upon the Matter, is precedently acknowledged by himſelf, where he confeſſes, *That notwithſtanding the Soul of Man is Enlightened by God, with clear Perception, it is lyable to the depraved Conduct of the Will and Senſes.* But how he can exempt the Underſtanding from ſuch a contiguous Depravation, and require its ſeparate Intelligence; yet grant, as he does, That the Humane Body

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and Soul are Conjoyned and Exiſt, as all Things do, by the Ordination of God; tho' no one Body and Soul but operatively different from others, and no leſs various than Corporeal Features are ocularly diſtinguiſhed. So that the Soul, tho' given by God, has no abſolute aſſurance of unerrable Perfection; notwithſtanding that, according to his Doctrine, it cannot be deſtitute of perfect Diſcernment tending to all requiſite Certainty in whatſoever it Determines.

But had he been ask'd, Why every Thinking Man who grants that he Exiſts, and all Things elſe, by the admirable Diſpenſation of the Omnipotent, ſhould not be proportionably compleated by his Underſtanding and Senſes, whereby there might reſult an unerrable Perception or Notion of Things evident from ſuch as are confus'dly underſtood? The Quere would doubtleſs poſe as Learned a Thinker as was this Author. As alſo, if ſuppoſed ſuch a poſitive Certainty in Humane Underſtanding, as he undertakes to Aſſert, Why it ſhould be thought to be ſo inſufficient a Gift of God, that it ſhould not at all Times be able to overrule, or not abſolutely ſuppreſs the Imperfect Aſſaults and erroneous Temptations of the Will and Senſes?

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Notwithſtanding that Experience aſſures, That there is no Univerſal Humane Perfection, either known or practiſed: And as certain it is, That he would not have preſented the World with ſo many Inventions of his Brain, whereby to explain the Principles he Avowes; if he had thought, That every Man's Intelligence, or Capacity of Thinking, had been evident, or not wanted the Inſtructions of his Pen: It being abſurd to conceive, That the Soul ſhould be ſufficiently Capacitated from God, to diſtinguiſh betwixt certain and uncertain Cogitations, and want any Advertiſement from Man more Methodically to advantage its Intelligent Faculty: Of which, he amply concedes, That no Man can be aſſured of its perſpicuous Execution, by reaſon of the powerful Reluctancy and Impediment it receives from the Will and Senſes.

To as little purpoſe does he offer *his Diſtinction betwixt the Act of Volition and the Aſſent to be deceived, that proceeds from the Inclination that the Underſtanding has to be ſwayed by the Senſes:* But how any Man can be ſaid to Aſſent without the voluntary Freedome and Concurrence of his Will; is more like a Contradiction than rationally to be Apprehended.

And muſt, in his own Phraſe, tend to the defeating of the Amplitude of Knowledge beſtowed by God on the Humane Mind, if rendered conditional, or ſubordinate to our voluntary Complyance.

By which manner of Diſcuſſions, he has confuſedly Involved the Serenity he would allye to his Principles, in order to the unerrable Perception Attributed by him, to the Intellectual Faculty. Yet after ſeveral Paſſages of this Nature, he ſeems to Recant them in his 43 *Particular*, where he peremptorily Affirms, *That it is as impoſſible to be miſtaken, if we yield our Aſſent to ſuch Things as we clearly underſtand, as to believe, That God is a Deceiver.*

If this Tenent were true, the Brain of every Man would, as it were by Divine Decree, be filled with Certainties: But how aſſured of this Infallible Diſcernment; the Anſwer that muſt be given, from the Principle of *Des-Cartes*, is, by clearly diſtinguiſhing of Things by the perſpicuous Faculty of the Humane Intellect: *Becauſe*, (ſaies he) *it rarely happens, That any Man will yield his ſpontaneous Aſſent to any Thing of which he has not a veritable aſſurance from his Underſtanding:* But if duely conſidered

conſidered how numerouſly the World is Repleniſhed with Mankind, of all Ages and Complexions, that give up their Aſſents to the Dictates of others, as they conceive them to be more Intelligible than themſelves; and yet, in ſo doing, however they erre, may not be leſs confident of direct Perception than any of their Tutors.

To be plain, were there ſuch an abſolute Gift conferred on the Soul by Divine Appointment; 'tis not to be denyed, That Men, Women and Children, would be equally Gifted, and accordingly diſtinguiſh by the undeniable Clearneſs of their Intellects, all Notions of Things certainly to be apprehended, or dubiouſly to be rejected: Becauſe God, as he Affirms, *Has endued the Soul with a ſeparate Jurisdiction, and perfect Determination without the Aſſiſtance or Concurrence of the Will and Senſes*; and therefore as a compleat Donative from Above, might have a ripe Diſcernment before the Bodily Parts grow to Perfection.

And if ſo, there is more Reaſon to expect, That it ſhould Actuate, alike perſpicuouſly, the Intellectual Faculty in the Youth, Age, and Sexes of Mankind, than that they ſhould be differently Judicious, or diſagreeably ſub-

ject to the Imbecillities of their Natural Compositions, as they appear to common Observation: Yet this Concluſion has as near a Reſemblance to his Premiſes as Graſs to Graſs.

This Reflection may well have a pertinent Allowance; if conſidered with what confidence he Averrs, *That God has ſo diſpoſed the Soul in the Body of Man, that it can exactly diſtinguiſh of Truth and Falſehood in every Conſideration*: Whereas the contrary is rather manifeſt as our Corporeal Exiſtencies are providentially ſuſtained: By which it appears, that, in Courſe of Nature, the Life is no otherwiſe Enſouled in the Body, than as it is Complicated with the Affections and Tinctures of the Senſes: And from whence the Actions of the Mind ſuitably Exert their Operations: And this is very apparent from the Natural Concourſe of Elementary Ingredients that mix with our Diſpoſitions and Moralities of Life. So that 'tis not to be doubted, That by a Natural Conduct, and Capacity appropriated to their Bodily Conſtitutions, ſome Men are more Scientifically Intelligent, Diſcreet, and Temperate than others: As contrarily, the vaſt Numbers of Inconſiderate,

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Imprudent Idiots, and Frantick Perſons in ſeveral Kinds, are every where Evident; which can have no other Cauſe than Iſſuing from the Irreſiſtible Sourſe of their Corporeal Tempers, together with the Tides of Commotion and Diſturbance, on which the Soul, as on ſo many Impetuous Billows, is more or leſs perpetually Fluctuated. Wherefore 'tis not a little bold in this Author, who peremptorily Affirms, *That there is a clear and diſtinct Perception, on all Accounts, Reſident in the Underſtanding*, if as he requires, *the Prejudices we have from our Conſtitutions, and Bodily Imperfections were diſtinctly avoided by ſeparating the Intelligence of the Mind from all Intermixture of the Senſes; as a Faculty, conferred by God, on the Humane Intellect*: Which to deny, according to his Notion, *were all one as to term God a Deceiver.* I call'd this his Tenent bold before, and I may add to it Preſumption, and Ignorance, beyond expectation in ſo Learned a Writer: Might he not as well have Affirmed? that a Man can have an unerrable Proſpect and Conception of the manner of the Exiſtence of the Omnipotent, as alſo of the Original Being of the Univerſe, together with Mankind, and every Individual Animal and Thing

Thing within its total Extent; had there been ſuch a Divine Gift beſtowed on the Intellectual Faculty: And muſt have been far more Infallibly manifeſt in the Uniting of Religion tending to the Worſhip of God; which doubtleſs, as the moſt neceſſary Intelligence, would have been Conferred by the Almighty, whereby he might be more unanimouſly Adored by all Mankind. But this is not ſo Decreed by God, nor in the Power of Man to accompliſh *by Reſiſting*, as he Inſinuates, *the Prejudices and Incapacities incident to our Innate Tempers of Body and Mind.* Not that I deny, that there is a conſtant viſible Conviction palpably diſcernable in the Works of the Almighty, by which the total World is Miraculouſly Conſtituted; from whence may be fully concluded, without any help of the Method, or Idea of Thought delivered by *Des-Cartes*; that God does Exiſt, and is to be Worſhip'd: And he that otherwiſe Inferrs muſt Repine againſt the Meaſures of Knowledge Providentially Ordained; which were all one with the Incongruous and Exorbitantly abſurd Aſſertion of this Author, *That implyes a Deception in God, if, in effect, he did not deceive the determin'd Progreſſion of his Providence,*

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in its Natural Conduct and Operation; by diſpenſing to All Mankind an unerrable Apprehenſion of every Truth, that ought to be moſt requiſitely underſtood, however diſproportion'd to the Tempers of Mind and Body; or experimentally repugnant to the Ordain'd Courſe of Nature, differently manifeſt in the Faculties of the Soul, Science, and Gifts; as they are variouſly ſpecified and proportioned in Humane Perſons. Not that the Intellectual Capacity is thereby ſo generally or naturally Diſproportioned as not palpably to diſcern all requiſite Truths expanded in the Miraculous Works of the Omnipotent; which otherwiſe had been Impertinently expoſed to the ſenſible Conviction of our Underſtanding: Inſomuch, that every vulgar Senſe, if not Slothful, or Regardleſs, or not naturally deprived of their Intellectual Faculty, or not made ſo Happy as to be induced by proper Inſtruction, and Teaching; cannot but acknowledge from the Facts and Conduct of Providence, that they are the Effects of an Infinite Cauſe; and conſequently no other than ſo many Infallible Convictions that the Deity does Exiſt, and ought to be Ador'd.

And whoſoever Affirms to the contrary, does in effect Arraign Providence, or term

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it a Deceiver, together with ſuch viſible Wonders as are Externally manifeſt, and whereby we receive ſenſible Apprehenſion of the Being of a God, tho' Inviſible to our Eyes.

Wherefore the Tenent of this Author, *That there is a Power in the Mind of Man to diſtinguiſh, by meer Idea, Truth from Falſehood*, muſt be a very Imperfect Notion; there being nothing more difficult, if not Impoſſible, than for the Humane Soul to be ſo far Diſrob'd of its habitual Impediments, the Senſes; as clearly to diſcern at all Times, the moſt requiſite Truths: Becauſe, if at any one time the Idea of the Mind, as he defines it, be leſs Perfect than at another; it is impoſſible for any Man, by that manner of Speculation, to be ſecure, That he does not Erroneouſly Contemplate, by not effectually ſeparating the Purity of meer Imagination from all the Defects Incident to Humane Nature.

Notwithſtanding, if you will rely upon the Notion of *Des-Cartes*, he tells you, *That God were a Deceiver, unleſs the Soul of Man, given from above, were not, by Executing his Manner of Idea, an Infallible Diſcerner of Truth from Error.* Which he is no more able to prove, than if he had undertaken to convince the

the World, That by Imagination the Soul may diſcharge it ſelf from its Co-habitation with the Senſes; or that in a Notional Conception both Parts of a Contradiction may be determined true: Which is the ſame with his peremptory Contradiction of the open and powerful Truth of God's Exiſtence, manifeſt in the Being of the Univerſe, and all it contains, by Affirming, *That 'tis poſſible, by meer Thinking to apprehend that there is a Deity; without the wonderful Objects and Means of Providence evidently conveyed to the Eyes of our Reaſon and Senſes.*

True it is, That the Intelligible Faculty has a fervent and Indefatigable Deſire of apprehending in the moſt Spiritual and divineſt Conception, ſuch Things as might ſublimely accompliſh the Underſtanding: Which reſtleſs Endeavour in the Humane Soul is no leſs apparent than endleſsly continued in various Searches and Inquiſitions whereby to Determine, on the moſt conſiderable Accounts, whatſoever, the divided Tenents and Notions of Men would moſt ſatisfactorily Reconcile.

But ſuch is the Infelicity of the Soul, that as it is Incumbered or Clogg'd with the Senſes; it

cannot, by its beſt Conceptions, be abſolutely divided from them; and therefore uncapable of acquieſcing in agreeable Concord, otherwiſe than as the Soul is United with them in the moſt ſenſible and familiar way of Conviction.

Had *Des-Cartes* been asked Whether or no it was not far more facile to Demonſtrate the Geometrical Meaſure of ſo many Acres of Land, than Mathematically to Compute the Immenſe Diſtance, from us, of the Sphere of the fixed Stars? He would ſoonhave granted, That an Account of the Former was much eaſier to be performed than of the Latter. How much more remote, from the moſt accurate Proſpects of our Underſtanding, are the Infinite Attributes of the Omnipotent! Or not poſſibly to be diſcerned by any Idea of Mind, otherwiſe than as they are effectually Publiſhed, to our Uſeful and Holy Admiration, in the Miraculous and Immenſe Conſiſtency of the Total World.

The next conſiderable Undertaking of this Author is, briefly to deliver ſuch Notions of which All our Thoughts are moſt eſpecially produc'd or compounded: And how by them are to be diſtinguiſhed ſuch as are Clear,

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from others Obſcure, or by which we are deceived.

To which purpoſe his main Maxim in his 48 *Particular*, he thus expreſſes, —— *Whatſoever they are* (ſaies he,) *that Relate to our Perception, are to be conſidered as Things, or as certain Affections of Things, or as eternal Verities having no Exiſtence without our Cogitation. Of thoſe that are to be conſidered as Things, the moſt general are to be comprehended by the Denominations of Subſtance, Duration, Order, Number and the like, as they may be underſtood to appertain to All other Things.* And theſe he annexeth unto two Generalities, the One of which he defines, *in reference to Things as they are only conceived by Thought of the Mind, or,* as he terms them, *wholly belonging to a thinking Subſtance*; the Other, *as it reſpects Materiality, or Body*: *But Perception, Volition, with all their Modalities, he refers to what, he calls the Subſtance of Thinking, either as to Magnitude, or Extenſion*; *as they may be conſidered in Length, Breadth, Height, Figure and Motion*; *Situation, Diviſibility, and the like. Other Things there are which by experience we find, that do neither ſolely appertain to the Mind, nor to the Body*; *and which proceed from the ſtrict Intimacy*

and Union that the Mind has with the Body; as the Diverſities of our Appetites and Paſſions, which have no Conſiſtence with ſole Cogitation.

And this is the full Senſe, of the Place I treat on, as near as his Words can be properly *Engliſhed.*

The firſt Remark that ought to be Judiciouſly tender'd on this Part of his Treatiſe, is, Whether according to ſound Reaſon, or eſſential Rules of Philoſophy, *he has duly defined what he calls Subſtantial Thinking, by the Epithet he gives it, appropriated to the Mind?*

But if to a Thinking Subſtance be annex'd, according to him, the Eſſence or Propriety of Thought; the Quere may be, How any Thing that is Subſtantial can be genuinely ſuppoſed to Imploy Thought, otherwiſe than on ſomething that is alſo Subſtantial? And if ſo, why not likewiſe Corporeal? Except he could ſenſibly make it appear, That Subſtance can be ſeparated from Corporeal Exiſtence: Which he has not been able to Explicate, notwithſtanding that he has attempted to do it with the moſt Refined Method of his Philoſophical Science; as may be ſeen in this Tract of his, which has occaſioned my Remarks

marks, and I doubt not, in the Senſe of a Judicious Reader, precedently by me diſproved.

But to go with him as far as his Aſſertions require; and next ſuppoſe, That the Humane Soul is a Subſtance; but in what manner Subſtantial, is not Defined by this Author, in any Kind, either as Incorporeal, ſuitable to the Dialect of the Schools; or otherwiſe as the Rational, Senſitive and Vegetative Soul are in the Body entirely United.

The Proof that he offers for giving to it a Subſtantial Denomination is grounded on the Proprieties or Qualities, he annexeth to it: *Becauſe whatſoever is not ſomething can neither have thoſe nor any other Attributes:* All which in his 13 *Particular*, he farther undertakes to Explain; and where he expreſſes.—— *That Subſtance is not to be underſtood but as it Relates to ſome Attribute or other, which chiefly declare its Nature and Eſſence; and to which they appertain:* Adding, *That as Length, Breadth and Depth, conſtitute the Nature of Body; ſo by Thought is Conſtituted the Nature of Subſtantial Thinking.* From whence he concludes, *That whatſoever can be Attributed to Body preſuppoſeth Extenſion, or the manner only of ſomething Extended;*

ded; but what are to be found in the Mind, are ſo many various Modalities of Cogitation. The Example he gives is, *That Corporeal Figure cannot be underſtood but in the Thing that is Extended; nor Motion but in whatſoever is moved; contrarily, Extenſion may be underſtood, by the Mind, without either Figure, or Motion.*

This Paragraph, tho' written by the Pen of *Des-Cartes*, cannot have ſo favourable an Interpretation as might render it Congruous to common Underſtanding.

That the Rational Soul may be Subſtantial is not Philoſophically to be denied: Nor ſo Defined does it leſſen the poſſibility it has of being Immortal; becauſe equally in the Power of the Almighty to give the Souls of all Mankind Immortality, together with the compleating of the Duſt of rotten Carcaſſes, according to the Doctrine of the Reſurrection, unto the ſame Bodies they Animated in Life-time, and to Reſtore to them, each Individual Soul that was precedently theirs.

But to Affirm, with this Author, That meer Cogitation, is a Subſtance of it ſelf in the Humane Intellect, is a very Irrational Conjecture: For how can Thought have any Similitude

Similitude with Senſe, but as thereby it may be Imagined to Relate to ſome ſenſible Object? Nor can it Actuate in any other Kind, if the Soul be Subſtantial; it being Impoſſible, That Subſtantial Cogitation, whatever Phraſe he gives it, can, otherwiſe, be Impioyed than on ſomething that muſt Aſſimilate its own Nature: And that muſt be either Conſiſtent of Bodily Parts, or of Subſtance equivalent to it. Nor is it poſſible to apprehend, how any Thing called Subſtance can be diſtinguiſhed from what is quantitively Corporeal; or not have ſuitable Attributes, in every Conſideration. So that his Idea of a meer Thinking Subſtance, in the Soul of Man, can have no ſignificant Congruity with Thought: It being totally Irrational to ſuppoſe, That any deliberate Conception of the Mind ſhould be fixed on no Object.

Should a Man Contemplate on *France*, or *Holland*, who had never been perſonally in either of thoſe Countries; he muſt diſtinguiſh, as he had received Information, or Read of them, the Nature and Situation of thoſe Regions, together with ſuch neceſſary Conſiderations as were requiſite for him to underſtand; or he could not have any Intelligible

ligible Apprehenſion of any of thoſe Places: So that the Poſition of this Author, That there is in the Soul ſuch an abſtracted manner of Cogitation, or Thread-bare way of Thought, which by his Notion, is Defined *a Thinking Subſtance*; were no other than to allow the Soul a Subſtantial Nature, but a very Impertinent or Idle Being in the Body: Or which is much the ſame, to be capacitated to Think, tho' without Cogitation of any Thing beſides it ſelf: Yet on this ſeparate way of Thought, depends the whole Structure of his Idea, *whereby he would prompt the Intellect to diſtinguiſh betwixt Thoughts Confuſed, or ſuch as Intrigue with the Senſes, from thoſe that have a ſole and pure Reſidence in the Mind.*

As frivolous, if duely Examined, are the Modalities of meer Cogitation delivered by him, where he Intimates, That whatſoever can be Corporeally applyed, muſt be underſtood to have Extenſion and Bodily Parts; and muſt therefore Relate, in one Kind or other, to the Thing moved or extended. And is it poſſible to Imagine, That the Soul ſhould be endued with Speculative Thinking, yet unperceptible of any proper Object to entertain its ſenſible Contemplation? All which is required

quir'd by *Des-Cartes*, who poſitively Affirms, *That Extenſion may be underſtood by the Mind, without Figure, or Motion:* By which he would imply, That clear Cogitation may be apprehended without Application to any Imagin'd Thing or Conception by the Senſe, That it is really ſuch: Which Words of his, if rightly conſider'd, imply a very ſingular Contradiction; it not being in the Power of Thought exactly to Judge of any Thing but as it appears in Extenſion, Figure, or, if mov'd, in Motion: How elſe can any of theſe *Particulars* be Mathematically computed; which could not but be known to ſo great a Geometrician as was this Author?!

In his 14 *Particular*, he confidently enough offers to Explain his moſt ſublimated Notion of Thinking, in theſe Words,—— *It is very facile*, (ſaies he) *to diſtinguiſh betwixt two clear and diſtinct Ideas; the One relating to a cogitative Created Subſtance, the Other to a Corporeal Subſtance*; if diſtinction be made of all Attributes of Cogitation, from thoſe of Extenſion: And thus he ſuppoſes, *That a Man may have a perſpicuous and diſtinct Idea of an uncreated and independent Thinking Subſtance, by which he means God.* But ſhould I Interpret, according

to him, the Deity to be a Thinking Subſtance; I muſt alſo Imagine the Deity of ſuch a Subſtance as may be comprehended by ſenſible Cogitation: And next, notwithſtanding all the Refin'd Caution given by *Des-Cartes*; I can have no other than a Corporeal Notion of God, or in Reſemblance to Bodily Subſtance; becauſe, in any other Conſideration, it were Incompatible with the Humane Soul, as it Acts its Cognition by the aid of the Senſes.

I may therefore well admire, Why he Defines the Deity an Uncreated Subſtance, and not Explicate to his Reader what Kind of Subſtance he intends by the Definition: Which can be no otherwiſe Interpreted than that he took care to avoid the Critical Objection, or Abſurdity, in the Opinion of not a few Eruditely accompliſh'd; by not ſuppoſing, That there may be ſuch an Exiſtence that can be truly Denominated both Incorporeal and Subſtantial: By reaſon that Matter and Form, Extenſion, and Parts, are the Proprieties of Subſtance, as it can be conceiv'd by Thought; and whatſoever is ſaid to be Incorporeal can have none of thoſe Attributes; becauſe nothing but Body is capable of them.

Wherefore

Wherefore 'tis no leſs naturally Improper to Aſſert the Being of an Incorporeal Subſtance, than to Affirm, That there may be ſuch a Thing as Body, without Body; which how far repugnant to the common Dictates of Reaſon and Senſe, is obvious to every Man's Underſtanding. And which could not but be foreſeen by *Des-Cartes*, who, to avoid that grand Reflection, *covers his Idea of God with the general Notion of an Uncreated Subſtance*; notwithſtanding that it is equally Impoſſible to Imagine a Subſtantial Exiſtence, however it came to paſs; without the Qualifications of Body, before mentioned. Becauſe the Term given by him, of *Subſtance Uncreated*, takes nothing from any Corporeal Propriety that might appertain to it. Inſomuch, That whether Subſtance be deem'd Created, or Uncreated, it may be Denominated Corporeal, for ought that, by this Author, is prov'd to the contrary: Who, by his Undertaking to call the Soul of Man a ſeparate Thinking Subſtance, tho' confin'd to the Body, and perfectly Impower'd to diſtinguiſh, after his Method, Truth from Falſehood; does in effect appropriate to God, whom he ſuppoſes to have committed that Animated Subſtance in-

to the Body of Man; no other difference of Epithet than by denominating the Deity an Uncreated Subſtance: The groſsneſs of which Tenent, if uncenſur'd, were enough to Infect the Brain of Man; by Inſinuating, That neither the Almighty, or any Humane Individual, with whatſoever may be nam'd Animal, or Vegetal, is other than Corporeally Exiſting: The Reaſons already given being of ſufficient Validity to Convict Mankind, That there can be no evident Diſtinction made, betwixt the Word Subſtance and Body.

How much more Judiciouſly ſafe, had it then been, for the Learned *Des-Cartes*, had he Aſſerted the Infinite Conſiſtence of the Omnipotent, rather by the Epithet of Incomprehenſible Admiration; than to have deliver'd, its more than wonderful Being, by the Philoſophical Notion of ſomething ſubſtantially Exiſting? Becauſe the Word *Subſtance* takes from the Immenſe Nature of the Almighty; as it may relate to Body and Commenſurable Parts, whereby he has expos'd it, to no ſmall conteſt; for Reaſons already Inſerted: It being a far ſurer Aphoriſm to define what the Deity is not, than by any Term of Science to expreſs what it is, or any clear Idea of its Miraculous Being.

In

In his next Head, which is the 55 of his Diſcuſſions, he farther dilates on his *Theſis* of meer Cogitation; as he would ſeparate it from all Corporeal or ſenſible Concomitancy: And this he attempts to Explain, by Affirming, *That Duration, Order, and Number, may be diſtinguiſh'd without annexing of them to any conceiv'd Subſtance.* Which if duely conſider'd, are but ſo many Inſignificant Varations of his former Poſitions: For how can any Corporeal Thing be ſaid, perfectly to endure, or to have Orderly, or Numerical Being; unleſs the Subſtance, or Body, to which they appertain, be alſo underſtood in every of theſe Conſiderations?

Can it be properly Juſtified, That any quantitive Thing is to be apprehended as to the time of its continuing ſuch; but as there may be perceptibly deduc'd from it, a real Intelligence why it ſo long in that manner Remain'd, or was Alter'd, or Chang'd into another?

Is't poſſible to perceive the Flame of a Candle extinguiſh'd, and not at the ſame time Diſcern, That the Matter that fed the Flame is alterable with it? Yes certainly, did it burn by Hours or Minutes accounted from a Watch or Dial.

And

And is it not plainly manifeſt, by the precedent Example, that Duration, Order, and Number, eſſentially appertain to the entire Conſiſtency, or Alterative Nature and Qualification of the Matter unto which they belong?

A Tree may be older than I can Compute, tho' not to the Man who, in paſt time, did plant it: But if its Decay, or Withering, in any of its Parts, be viſible to me: I may be able to account the Day or Seaſon in which I perceiv'd it did Alter. Wherefore to conclude, as does this Author, That Duration, Order, and Number, are but the Modalities of Subſtance, is a very fantaſtical Conceit; ſince they muſt have an Inſeparable Tendency, more or leſs, by their Co-herent Attributes, to the Perfection, or Imperfection of whatſoever does Exiſt.

If a Six-pence be broken into two Parts, there will remain in either of thoſe Pieces, a different Proportion in Number, Orderly Figure, and Duration, than when it was whole. And tho' this is but an Artificial Inſtance, as it may have Reference to any Thing broken or ſever'd; 'tis not impoſſible that, by Time, might naturally be produc'd the ſame Effect; becauſe whatſoever does Corporeally

Corporeally ſubſiſt, muſt be ſubject to Alteration in all its Capacities.

So that what he ſimply calls the Modalities of Being, is indeed Eſſential to Subſtance and its Bodily Parts; or no other than neceſſitated Change, ſooner or later, of all Individual Things that are extant to Humane Obſervation. The Stars that Illuſtrate, as the moſt Refin'd Jewels of Illumination, the Firmament above, and leaſt apprehended, by Thought, to vary in any of their Proprieties; cannot be certainly exempted from Preſent or Future Alteration; either as they have, or may vary in their Order, Influence, Motion, or what beſides may be Incident to their Eſſence and Nature.

How Inſignificantly then is argu'd by this Author, That neither Order, Number, or Continuation, in any Thing that Exiſts, is otherwiſe to be underſtood, than as ſo many Modalities of Subſtance? Tho' to every Man's Reaſon there can be no Variation or Change in any of Theſe, but there muſt be alſo a ſubſtantial Alteration in whatſoever may be call'd Body, or Subſtance.

In his 56 *Particular* he undertakes to make out what he farther means by the Modalities he

he gives to Things; which he grants, *In ſome reſpects, may be Interpreted Attributes, or Qualities; and as Subſtance may be ſaid to be Affected or Vary'd by them not Improperly call'd Modalities:* But moſt generally, he allows them, *when conſider'd as Inherent in Subſtance, the Terms of Attributes.*

And what would he infer from this puzzle of Words, and perplexing of Terms, otherwiſe than he has precedently mention'd? For if Modalities, Qualities, and Attributes, may be apply'd to Subſtance in all its Capacities, Proprieties, and poſſible Variations; how is he able to make good his former Aſſertion, *where he denominates them the meer Modalities of Cogitation?* So that whatſoever Alteration is either Naturally, or Eſſentially Incident to Subſtance, is no farther Real, in the Judgment of *Des-Cartes*, than what may have the empty Notion of Modality; tho' both in ſubſtance and manner of Being, the Thing does not continue the ſame as it was before: Which is a perfect Contradiction to ſenſible Evidence, if duely apprehended the precedent Inſtances; which, as I conceive, are amply ſatisfactory.

There yet remains a Part of this Head that may well be Interpreted ſomewhat Crazy. Notwith-

Notwithſtanding that he undertakes to explicate the ſoundneſs of its Importance as he intends: To which purpoſe his Expreſſion ſtands briefly thus,—— *In God*, (ſaies he) *cannot be any Modalities or Qualities, but only Attributes; becauſe in him, there can be no Variation:* And no leſs Excellency of Subſiſtence, does he appropriate to Things Created; *if no different Modalities, or Diverſity of Exiſtence and Duration is to be found in them*; and conſequently exempts from thom all Qualifications and Modalities, and inſtead of thoſe, he Dignifies their Being by the Name of *Attributes annex'd to their Natures.*

If this Doctrine could be verified, there might be no diſtinction betwixt the Subſtance of God, as Defin'd by this Author, and any other Thing of whoſe Exiſtence and Duration we have no variable Proſpect: Of which the Univerſe, for ought can be prov'd to the contrary, affords many. And who can doubt, but it may be ſo Affirm'd, not only of Stars, that have unchangeable Magnitudes above us; but alſo of the moſt Durable Rocks of Adamant, which by their Permanency and laſting Continuance, admit of no certain Computation, whereby may be Imply'd their Tem-

porary Alteration, or Change? And 'tis no wonder, if with the Modern Philoſophical Mine, pretendedly diſcover'd by this Author, there be diſcern'd ſome Rubbiſh amongſt the Diamonds which he endeavours to poliſh by his Brain.

For what is more groſs, than to render, as he does, *the Attributes of an Uncreated Subſtance, or of God, the ſame with Created*; and next to grant, *That there is no other Diſtinction betwixt Subſtance and Subſtance but as they differ in Attributes*; which if true, there could be no exact diſtinguiſhing of Uncreated, and Created Exiſtence: By reaſon that a Corporeal Being might, according to his Affirmation, have the ſame Attributes. Nor is there any Diſcuſſion more Philoſophically difficult, than to explicate, how Subſtance and Body may be differently apprehended by any Intelligible Diſtinction of Science: But whoſoever will rely upon the Opinion of *Des-Cartes*, muſt wipe out of the Eſſence of his Intellect all actual Perception of Objects repreſented by the Senſes; and next be ſo far reconcil'd to his Idea, as to Denominate the Humane Soul a peculiar Subſtance committed to the Body by God, but nothing ally'd to Corporeal

real Nature; tho' naturally actuating the Body of Man: As if it were no Contradiction to determine, That Subſtance, not to be underſtood Body, can operate on Body. To evade which obvious Objection, he frequently labours, as may be obſerv'd by the *Remarks* precedently made on his Treatiſe, to ſublimate his conceiv'd Idea, by ſuppoſing, *That the Faculty of ſeparate Thought was ſo diſpos'd by God as a perfect Thinking Subſtance Inherent in the Mind: To which, as a Gift of Perfection, he Imputes unerrable Conception; asking no other Conditions, whereby to remove the Miſapprehenſions and Frailties of Thought, than very conſiderative and diſcreet Thinking:* Which is the utmoſt performance that can be rationally attain'd by any Contemplative Act; but not with that compleat Aſſurance requir'd by him, *whereby Thought may arrive to ſuch a Veritable Certainty, That it may not at all be Complicated with the Senſes; or beholding to them for any Object of their Conveyance to the Judgment-Seat of the Underſtanding*: Which is no leſs Inconſiſtent with Humane Capacity, than to believe with *Des-Cartes, That it is poſſible ſo to Diſcipline the Mind, as to be one of his Thinking Proſelytes*: Tho' not able to Demonſtrate, That there is

any ſenſible Certainty in that ſpeculative Mode of Thought, which by a main Artifice of his Brain he endeavours to promote.

Nor leſs diſcrepant from the ſoundeſt Opinion grounded on Divine and Philoſophical Science, is the Denomination he gives to the Deity, which he defines, *an Uncreated Thinking Subſtance*; or as he would intend, *the Almighty an eternal Thinker*: Which is very like a Contradiction in Terms: It being impoſſible to allow to Thought, by common Acceptation, other than a temporary Attribute; or not to be otherwiſe Defin'd than Exerted in Paſt, or Preſent Time: Which, if apply'd to God, were all one as to Impute to the Deity a temporary Thought; and muſt Imply Solicitude and Care ſuitable to the Nature of Contemplating on ſomething to be Improv'd or Perfected by Thinking, that was not before exactly conſider'd: Which how far deſtructive to the Attribute of Omnipotent Perfection, I ſuppoſe was not duely weigh'd, *by this Author*, when he penn'd this Paragraph. I find a Conceit in *Plato* much more paſſable, than what is written by *Des-Cartes*, who being ask'd, What God did? His anſwer was, *That the Deity exercis'd Geometry*. On which, the Learned *Gaſſendus*

Gaſſendus, has this Comment, *That Geometry as it Relates either to Contemplation, or Action, may not be incongruouſly underſtood of God; as he may be ſaid to Contemplate, and chiefly conſider himſelf in that Act, Emphatically expreſs'd, in the Being given by the Omnipotent to the Univerſe; together with the proportional Conſervation it has from Supreme Power and Conduct.*

Which is a better Expoſition than that of a thoughtful Deity, deliver'd by this *French* Philoſopher; who makes no ſuch ſublime Diſtinction betwixt *an Uncreated and Created thinking Subſtance*, as does in any kind Attribute to God, what he means by *Uncreated Thinking*, or how, or in what manner to be apprehended; as it may be apply'd to the Deity: So that according to the Latitude of this Author's Idea of *Thinking*; perfect Thought may be Inherently Attributed to the Humane Mind, no leſs than to the Almighty; with this only difference, That Man is not an Original but a Created Thinker: And 'tis as poſſible, if granted, as this Writer determines, That perfect Thought, beſtow'd on the Soul by God, may be fill'd with Perfection, as it ſolely reſides in the Intellect, no leſs Created than if it had been eternally ſuch.

To

To conclude, it is far more congruous to the Propriety of the Diety, if ſaid, That he has for ever determin'd, than by any Notion Affirm'd a Thinker: It being not to be deny'd, That Thought can have other Conſtruction but as Imply'd, by its Paſt, Preſent, or Future Contemplation on ſomething in Being: Which cannot be an Object of Omnipotent Thinking; becauſe nothing could really Exiſt that was not, by him, ſo foreſeen and Eſtabliſh'd.

Whereas Humane Reaſoning muſt neceſſarily proceed from Principles deduc'd from appoſite Concluſions gradually made and depending on Antecedents and Conſequents of Proof in every Conſideration: Which can have no reſemblance to the Science of God; whoſe perfect Knowledge is perpetually the ſame: And therefore admits of no ſucceſſive Degrees, or Qualifications, tending to the Method of Argumentative Confirmation.

In his 60 *Particular* he attempts to ſurpriſe his Reader, but how Improperly may be gather'd from the Expreſſion he delivers in theſe Words,—— *Whoſoever* (ſaies he) *does acknowledge, That God could make us certainly Intelligent of whatſoever we may diſtinctly Apprehend,*

hend; muſt, for Example, grant, That we may have an Idea of Subſtance extended, or Corporeal; although we do not, as yet, aſſuredly know that any ſuch Thing does really Exiſt; tho' certain of the poſſibility of its Exiſtence.

And I may well Reply, That 'tis as far from my expectation to find in *Des-Cartes*, ſo weak an Argument, in order to the Grandeur of the Matter, he would prove; by his Affirming, That we can have no abſolute Aſſurance, unleſs the Intellect be immediately Impower'd by God, that Bodily Subſtance and Extenſion have other than a poſſibility of being ſuch: Which has ſo very oppoſite a diſparity to natural and ſenſible Conviction, that it appears no leſs Irrational, than if he had undertaken to Argue Mankind into the Belief, That it is poſſible to have Senſes and yet be deſtitute of their Uſe.

Can a Man live and not be ſenſible, That Subſtance, in its Bodily ſignification, has a proper Being? Or can he feel, and eat the Food that nouriſhes his Corporeal Compoſition, and not be Knowing, otherwiſe than by meer Cogitation, that he ſubſiſts by it, or that there is any ſuch Thing, but in poſſibility Exiſting? Yet ſo determin'd, by the Dictates of

of this Author, however Contradictory to common Senſe; or as Unſound, in his Way of Reaſoning, as if he had declar'd, That a Man might have Corporeal Life, but be dead as to all Bodily Conſideration; whilſt by ſole Ccogitation in the Mind, he may have only a living Notion of the poſſibility of the Being of Subſtance and Body; as they may be diſtinguiſh'd by their natural Capacities.

Which Opinion of his he would Confirm, as he preſumes, with no greater difficulty, *Than as any Man may judge that he is a real Thinker, and by that Thought exclude from himſelf all other Subſtance, either Thinking or Extended.* On which Suppoſition or Conſiſtency of Thought, as he intends it, he certainly concludes, *That every Man may diſtinguiſh himſelf, not only from every Thinking Subſtance, but alſo from all others of Corporeal Denomination.*

Had a Poet been Author of this Conceit, he had not farther ſurpaſs'd the Exceſſes of Fiction, than this *French* Writer has done by the liberty he allows to his Invention, deviated from Principles of Reaſon and Philoſophy: For what is more prepoſterous to Both, than to conclude as he does, That it is poſſible for a Thinking

Thinking Man to ſeparate himſelf, by meer Thought, from the ſubſtantial Similitude he has to all others of Humane Nature; as alſo from whatſoever can be ſaid Corporeally to Exiſt. And may not the ſame Perſon by as good conſequence Determine, That he is a Thinker in Body, without being ſenſible, that any Bodily Life, Compoſition, or Parts, appertain to him? Which requires no plainer Confutation than what has been already obſerv'd on Paſſages of this Author, precedently tending to the ſame purpoſe; as may be diſcern'd by whomſoever ſhall heedfully inſpect theſe Papers.

All which, in effect, is conceded by himſelf, before he comes to a Period of the Head I Treat of; where he thus Expreſſes. —— *That although we ſuppoſe, That God has ſo ſtrictly Joyn'd to the Cogitative Subſtance other Corporeal Subſtance, that they cannot be more firmly Connected; and from their Conjunction Conſtituted their Union: Notwithſtanding they may remain abſolutely diſtinct, becauſe God may reſerve a Power to ſeparate their Beings, tho' Corporeally Inclos'd: Or to confer Conſervation on both as United, or ſeparated; however they participate, by Exiſtence, with the Extent of the Body.*

These words, in Summ, can have no other Signification than what may be conster'd a Distinction without an apparent Difference, and therefore Logically Unintelligible; there being no Notion more perplex'd than his manner of Uniting Substance to Substance, in a Corporeal Figure, and yet expect, that they ought to be requisitely distinguish'd.

The Reason he gives in Summ, is, *That it may be so Ordain'd by God, That whatsoever are Conjoyn'd by him takes not from his Power to disunite their Conjunction, by capacitating their Separation; or as the Soul may singly Act without any Assistance or Concurrence of the Senses appropriated to the Body.*

If this be the best Argument that he can Alledge, by which he would heighten the Notion, so much Celebrated by him, of the Mind's operating by a distinct and clear Idea from all Corporeal Concomitancy; it is more than Intricately, in this Place, urg'd by him; who grants the firm Union, Constituted by God, of Soul and Body; yet will needs Imagine; that their Separation is also determin'd by God: And thus, by *Des-Cartes*, the Act of God is render'd contradictory to it self.

By

But how does he undertake to Explain his Propoſition? Why verily, by no better Aſſurance than that it is poſſible for the Almighty ſo to diſpoſe the Humane Mind, that it may operate divided from the Body and ſenſible Parts; tho' naturally United to all of them: Which, in effect, does annex Contradiction to the Act of God; it being palpably evident, That the Underſtanding Faculty does actuate its Intelligence with the Concurrence of the Senſes: But no ſuch manifeſt Aſſurance, that by any ſeparate Power of the Mind the ſame can be Effected. Let a Man Imagine, by his utmoſt Force of meer Thought, That by the Speculative Act of the Mind, is repreſented the Shape, Proportion, Likeneſs, and Colour, of any Object, whether it be Moving, Standing, or Lying; 'tis not in his Power ſo perfectly to diſcern all their ſeveral Proprieties, as if they were viſibly perceiv'd by him, and conſider'd as proper Objects to entertain all other requiſite Parts of his Senſes: But very Impoſſible to Contemplate, of any of theſe, by any ſeparate Act of the Underſtanding diſtinct from Senſation: Becauſe there could be no Idea or Notion of ſuch Things that had never been convey'd to the Intellect by the

conſent of the Senſes; as by Seeing, Feeling, Smelling, Taſting and Hearing, are occaſionally compleated the uſeful Appurtenances to the Humane Intellect: Wherefore it might be well admir'd, Why the uſeage of Eyes, Hands, and Ears, with other of the Senſes, ſhould be naturally Incident to the Bodily Parts and Compoſition of Man; if the Mind could ſolely be perfectly apprehenſive without them? And doubtleſs theſe Excellent Gifts had been Inſignificantly conferr'd on Mankind; if Thought, abſtracted from Senſation, might be alone exactly apprehenſive. Nor can ſufficient Reaſon be given, Why the Mind ſhould not have been ſolely beſtow'd, however Ordain'd to Exiſt; if by its ſingle Intelligence it could have perform'd the divers Operations, and Actual Capacities that are joyntly Exerted by the Soul and Senſes?

'Tis not to be deny'd that the Exiſtence of the Mind, unconfin'd to Body, had been as eaſily accompliſh'd by Providence, had it been ſo determin'd, as it is now Reſident with the Society of the Senſes: And queſtionleſs, if ſo eſtabliſh'd, had, exalted Humane Felicity to a paramount degree: Nothing tending more to the detriment of Mankind, than

the

the complicated and prone Inveiglement of the Soul by the Allurement of the Senſes: So that could the Mind have been exempted from Corporeal Conjunction, it had certainly, by a glorious Act of Providence, been diſcharg'd from its Bodily Confinement; together with the exorbitant, and wicked Temptations, it receives from the Appetites and Senſes. But this being repugnant to its Decreed, and natural Station in the Body of Man; no room is to be found there for the Idea of *Des-Cartes*, by which he does incompatibly infer, That the Humane Soul is of a diſtinct Subſtance, tho' Co-herent to the Body of Man, and actually concomitant with Corporeal Operations.

In his 64 *Particular*, he farther attempts to Explain what he would mean by his Definition of a diſtinct *Thinking Subſtance*; his Allegation is, *That Cogitation and Extenſion may be underſtood as one and the ſame Mind may have diverſity of Thoughts; or as one and the ſame Body, retaining its own Quantity, may be diverſely Extended; at one time in Longitude, at another in Latitude, or contrarily leſs in Latitude than in Depth, and the like, by which they may be diſtinguiſh'd; as alſo conſider'd as Modalities of the Subſtance to which they belong.* Can

Can this be Judg'd a proper Method, in order to the Improving of Humane Understanding, according to the undertaking of this Author; as he Defines the varied Proprieties of Subſtance, whether in Length, Breadth, or Depth, no other than different Modalities applicable to the ſame Subſtance? Whereas the contrary is Mathematically certain; becauſe the Extent and Proportions, in one and the ſame Body, muſt neceſſarily have a Commenſurable Alteration.

If the *Baſis* of a ſolid Subſtance be ſuppos'd to be lengthened one Foot more than it was before; the Latitude and Depth of the ſame Body cannot but have as to its Proportion, an Eſſential Variation: Which evidently proves, That what he Terms meer Modality, or accidental Change of local Parts in the ſame Subſtance, is neither Arithmetically, or Geometrically true: It being no leſs abſurd to Affirm, That the half of a Number is all one with the whole; or that the different Situation, Meaſure, and Being of Subſtance, were neither a quantitative or formal Alteration in reference to the reality of Place, Figure, or Motion; as they ought to be apprehended in all their Capacities. On which conſideration, the

the Idea of this *French* Writer, is ſo far from tending to a ſignificant Modality, as he would apply it; that it rather vaniſhes as a fictitious Comment, or Shadow of his Brain.

To be plain, ſhould a Man Collect a numerous Summ of Refin'd Notions, with the moſt Artful Curioſity that could imploy his Imagination, whereby he would dignifie the Humane Intellect; he might find the Undertaking no leſs difficult, to the fineſt Thread of his Reaſoning; than to Invent a more wonderful Paſſage into an obſcure Labryinth than could be ever attain'd by rational Conduct: There being no paſſabler or clearer Proſpect by which the Soul of Man may diſcern the Manner of its actual Being and Exerciſing of the Intellectual Faculty; than as it is operatively Conjoyn'd, with the temper of the Body and Senſes: To whoſe united Concurrence may be Attributed, more or leſs, the qualified Abilities of the Underſtanding in every Conſideration. Do we not Experimentally know, That Judgment, Wit, Paſſions, Affections, vertuous or vicious Inclinations, with all the Moralities of Life, are Influenc'd by the Mind; as it does participate with the Elementary Compoſition Inherent

rent in the Body and Senſes: Inſomuch, That their ſeveral Inclinations may be term'd the Effects of Heat, Cold, Moiſture, or Drought, as they adhere to our Natures.

Is not a Wiſe Man diſtinguiſh'd by the Judicious Temper of his Thoughs; the vain by their Levity and inſipid Converſation? No leſs diſcernable than one Man's ſtrength of Mind, or, Corporeal Vigour, has a natural Variation from another: To which may be Emphatically added, the experimental Obſervation as it reſpects the Intellectual Faculties; of which ſome are Impower'd with a more conſiderable vivacity of Apprehenſion, Judgment and Wit, in Age; than was manifeſt in Youth: But in others, contrarily, a Decay, or Withering of their Underſtandings no leſs apparent than the Wrinkles of their Brows and Cheeks: Which could proceed from no other Cauſe but as the Vigour of the Mind does naturally Impair, in divers examples of Age; with the Strength and Temper of the Arteries, Nerves, Members and Senſes, that appertain to the Body: Yet not univerſally ſo, becauſe, not ſeldom obſerv'd, That ſome Perſons, who have liv'd to Antiquity of Years, have rather b.en compleated, in all Kinds, by their Intellectual

tellectual Abilities; for which there can be given no better Reaſon, than, that notwithſtanding they have ſome Corporeal Deficiencies incident to Age; yet none in the Principal Aſſiſtants of the Brain, and its Contiguity with the Senſes.

All which is far more evidently demonſtrable than a ſuppos'd Thinking Subſtance, ſeparately acting in the Body of Man, according to the Tenent of *Des-Cartes*; together with his Imaginary Modalities, by which he would inſinuate a diſtinct Thinking Faculty to the Humane Soul, without any ſpecifical Aſſiſtance receiv'd from the Senſes: A Notion no leſs abſurd, than 'tis impoſſible to Think, and not be exactly ſenſible of the Thing, or Object Thought on: Either as it had been at the ſame time convey'd to the Underſtanding by ſome One, or more of the Senſes; or their Impreſſion, by the Memory before retain'd.

Which fully Confirms the Philoſophical Maxim; That nothing is in the Intellect, but what was before in the Senſes: Yet not ſo to be Apply'd, or Inſtanc'd here, as might, in any reſpect, derogate from the Excellency of the Humane Soul, or its Immortal Eſtate, when Life departs from the Body; it being

in the Power of the Almighty to Eternalize its Being; howſoever it was Compos'd, or the manner of its Exiſtence when Reſident in the Body of Man.

I find no other Diſcuſſions in this Treatiſe of *Des-Cartes*, that require a more pertinent or accurate Obſervation, than may be Imply'd from what is already Written: Wherefore to avoid unneceſſary Repetition, I deſcend to his Concluſion; where he briefly Summs the moſt conſiderable Principles on which he had founded his precedent Arguments; committing them, as very adviſable, to the peruſal of his Reader.

The Firſt of his Counſels is, *That we ſhould be very cautious, how we adhere to Former Opinions that have not been ſtrictly Catechiz'd and found true, by a ſubſequent Examination:* Which I confeſs is plauſibly Advis'd.

But how does he make good theſe Admoniſhments? Why, *by heedfully regarding*, as he prompts us, *ſuch Notions we have in our ſelves*, by which, he would ſuppoſe, *We are enough enabled to arrive to clear and diſtinct Knowledge.*

Here he Epitomizes the main Force and Application of his Former Ideas, in order to

erect

erect perfect Underſtanding in the Humane Intellect; and by which he undertakes ſo to Cleanſe it, that the Senſes may have nothing to do with its orderly Perception: As if the Determination made by the Intellect, with the Aſſiſtance of the Senſes; were no leſs detrimental to the Principality of the Mind, than the looſe Advice of a City-Mobb would be to their Monarch: Whereas, by a ſurer Inference, the bare Idea of the Mind, introduc'd by *Des-Cartes*; if duely conſider'd, does Imply ſuch a Licenſe of Thought, as is no way conſiſtent with the orderly Rule of Man's Underſtanding: It being poſſible, That the Body-Politick of Reaſon, or perſpicuity of Thought, in its orderly Method, ſhould be perform'd without the Concurrence of the Senſes; no more than a Man can be aſſur'd, he lives, and not ſenſibly demonſtrate, both in Soul and Senſe, that he does ſo. But ſo fully, I conceive, has been, by what is Written before, refell'd the Conceit, of this Author, relating to his ſo often Inſerted, or rather devis'd Tenent, or Manner of certain Thinking, under the Notion of an Idea; that it appears too like a Fable Invented by himſelf.

Towards the Cloſe of his Treatiſe which he takes to be, on divers accounts, a very Irrefragrable Advancement to Humane Underſtanding.

He much Celebrates this Inſtance, *viz. That amongſt all the Notions, by which Man is enabled to diſcern Propoſitions of Eternal Verity; there is none more ſignally applicable than the certain Affirmation, That out of Nothing, comes Nothing:* Which Allegation, of his, if maturely conſider'd, will be found Improper, nay, abſurd: As what can be more oppoſite to Reaſon and Senſe, than to ſuppoſe, That a Notion, or Thought of the Mind, can have nothing for its Object? Becauſe whatſoever is conceiv'd, by Intellectual Thinking, muſt be really Exiſtent; it being all one as to Imagine, That Non-entity, or Vacuity, has a Natural and Certain Being, notwithſtanding that the Univerſal World is repleniſh'd with Bodies of divers Kinds, and no room left either in the Univerſe, or Brain of Man for the Conception of Nothing. So that to derive a Notion from what can be Interpreted by no Word, Etymology, or ſubſtantial Thought; is no other than as if *Monſieur Des-Cartes* had Imagin'd himſelf Nothing, in Body and Mind, when

when in order to manifeſt a certain Truth, he Penn'd his Contemplation of Nothing.

And 'tis much to be admir'd, That this Author, who endeavours to Embelliſh his Opinion by a new Way of Reaſoning, ſhould comply with the Obſolete, and no leſs Impertinent Poſition of ſome Former Philoſophers; by which they would Infer, That the Term or Accent of Speech, that Verbally did Relate to Nothing, was contradictory to whatſoever had Eſſential Being: Whereas there can be no Contrariety or Oppoſition, betwixt Nothing and any Thing that may be ſaid, either as a Cauſe, or Effect, to have real Exiſtence. On which ground it may aptly be requir'd, That the pretended Philoſophical Tenent, that would Aſſert, That out of Nothing, comes Nothing; ſhould be as clearly Expung'd out of all Diſcuſſions of that Nature, as if a Man ſhould undertake to Argue, that one Impoſſibility could produce another: Or Celebrate a Non-entity, under the Notion of Eternal Truth, and Crown it on the Pate of Nonſenſe. Beſides all which Abſurdities, 'tis very apparent, That this ſuppoſed Principle is abſolutely Inconſiſtent with the moſt general Belief of Mankind, that allows Perfect Creation,

from

from Nothing, of the Total World: Which how Incompatible with the Tenent, here mention'd of *Des-Cartes*, I leave to the Judicious Peruſer of this Treatiſe.

And thus I Conclude my Remarks on the Firſt Part of his Philoſophy, call'd, *The Principles of Humane Knowledge.*

REMARKS

REMARKS

On the Second Part of the

New PHILOSOPHY

OF

DES-CARTES.

Concerning the Principles of

MATERIAL THINGS.

PART. II.

THE Magnitude of the Title appertaining to the Second Part of the Philoſophy of *Des-Cartes*, creates in his Reader, an Egregious Expectation of a ſuperlative Method, and undoubted Aſſurance; whereby the Humane Mind might ſatisfactorily apprehend the admirable Conſiſtence of the Material World, provi-

providentially Diſpos'd for the vaſt Habitation and Benefit of Man and Creatures.

Which is ſo Important a Knowledge, That the Miſdemeanour of the Intellectual Faculty cannot be excus'd from being Impeach'd by the Aſſembly of the Senſes; if negligently Regardleſs, or not induſtriouſly Apprehenſive, as far as can be Extended its Solid Contemplation; How Mankind is ſenſibly Suſtain'd by the peaceable Order and Conduct of Nature: And next to that Philoſophical Speculation, the Soul of Man ought to bewail its Infelicity, in Bodily Life; when perniciouſly allur'd by Covetous, or Ambitious Deſires, to Poſſeſs more of the Earth he treads on, than ought to be his, to the Detriment or Ruin of others: Inſtead of deducing from the regular Conſtitution of the World, in which he Subſiſts, How unnaturally he Lives, by Infringing the Rights of Humane Society: Which ought to have an Impreſſion on the Soul, in a Philoſophical, and Moral Conception. This is as a *Proœmium* fitly annex'd to the enſuing Treatiſe, I thought not Improper to Inſert; before I come to the Firſt *Particular* of *Des-Cartes*, which as a Platform or main Fund to his ſubſequent Notions, he Compiles; by undertaking

undertaking to Explain the Reaſons by which the Exiſtence of *Material Things* may be certainly underſtood.

His firſt Words are theſe,—— *Although there is no Man that does not fully convince himſelf, That* Material Things *do really Exiſt, notwithſtanding that it has been dubiouſly render'd by me, in the precedent Diſcuſſions, or accounted amongſt the Prejudices incident to the Childhood, or Greenneſs of our Years; it is now Incumbent, on me, to ſearch for the Reaſons that may produce its perfect Intelligence*: To which purpoſe he infers, *That whatſoever we apprehend, muſt neceſſarily proceed from ſomething, that is not the ſame with the Humane Mind; nor is it in our Power,* as he Affirms, *to think of one Thing more than another; but as from ſome other Thing we are Affected, or receive Impreſſion on the Senſes:* And makes this Quere, *Whether that Thing be not God, or differently to be conceiv'd?*

This Part of this Head, may be pertinently Anſwer'd, by demanding, On what ground *Des-Cartes* undertakes to conclude, that the Soul is ſo diſpos'd, as it operates on the Senſes by the Idea it has from God? Which perfectly contradicts the Notion deliver'd by him in the 7th *Particular* of his Firſt Part, and Remark'd

by me, accordingly; where he declares, *That it is in our Power to reject whatsoever we doubt of, or feign that it is false; and thus we may suppose, that there is no God, no Heaven, no Bodies, and that we have no Hands, no Feet, or Bodies Constituted.*

But in his Second Part, which I now deal with, he restores the Senses, that he had Abdicated before, to the uses of the Mind. By which it appears, that he was conscious of his former Mistake; and that 'tis not possible to discourse, as he does, in this Part, of *Material Principles*, without allowing the Association of the Mind to its sensible Discernment.

The Reason that he mentions is, *That because we sensibly, and distinctly perceive, from the Impulse of the Senses, any certain Matter extended into Length, Breadth and Depth, whose Parts are diversly Figur'd, and variously Mov'd; as also how they affect us with different Conceptions that we have of their Colours, Smells, Griefs, and the like: If God should Imbue the Mind with an Idea of such Extended Matter, and afterward should cause any other Thing so to dispose the Humane Intellect, that it might fix its Imagination on what had neither Extension, Figure, or Motion; no reason can be given, why God might not be thought a Deceiver.*

This

This Paſſage can have no excuſable Defence, if judiciouſly Examin'd: The Queſtion he offers being ſo ill Stated, or Inconſiſtent with the accurate Part of Reaſoning, That it cannot amount to Refin'd Sophiſtry. For however he might conceive, That the Soul, together with its Mental Idea, might be placed in the Body by God; it could not be without aſſurance, that the World is repleniſh'd with Corporeal Beings that cannot be Denominated ſuch, but as Length, Breadth and Depth, Colour, Taſte and Smell, are their natural Proprieties: So that where the Intellect and Senſes are joyntly Illuminated, in whatſoevet Method, by the Act of God; they muſt be far more certain than to admit any room for Miſconception, or the If, or Quere, Inſerted by *Des-Cartes*; by which he would Infer, That could a Man, Enſoul'd by God, Imagine by any other means, that there is no ſuch Thing as Longitude, Latitude, Depth and the like, appertaining to Corporeal Subſtance; he might call God a Deceiver: Which were all one as to ſuppoſe, That a Man duely apprehenſive, of any Object, ſhould by the Will of God, voluntarily Determine, that he is not; which is no leſs Irrational, than Impoſſible to all of

competent Understanding: But no disallowable Tenent if apply'd to other Particulars of Mankind, whose Intellects are not of sufficient Ability, if not naturally stupid, or accidentally unsound,or phrenetically distemper'd; as is the condition of such as are Distracted, and, in a manner, totally destitute of the Use of their Rational Faculty: And who can doubt, that not a few of these, want Capacity to define Length, Breadth and Depth, as Inseparable to Bodily Existence? Which could not have been, if Mankind were Universally endu'd by an Impartial Course of Nature, Ordain'd by God, and so committed to the Humane Body: Where it must have had a more excellent Residence than could be impedited, or debas'd by Corporeal Attributes; and must have likewise been compleated with as perfect an Idea, in every respect, as this Author endeavours to prove: But not being perform'd, his manner of Argument turns the point of a *Dilemma* against his Assertion, by which he would annex a more general and perfect Idea to the Soul of Man, than is experimentally Certain; and whereby, in effect, he Terms God a Deceiver; because, according to his Doctrine, every Soul, within a Humane Body has not a parallel Idea of exact Knowledge.

A Bleſſing much to be wiſh'd, or rather Implor'd by Prayer, were it not repugnant to the Methods of Providence omnipotently determin'd; by which the Intellectual Faculty is differently Impowr'd, as its Corporeal Dominion is more or leſs Abſolute; either as it commands, or is weaken'd in Rule, by the Conſpiracy of the Senſes: Which cannot be otherwiſe, the Mind being ſurrounded and continually endanger'd by the frail Compoſition and Temperatures of the Bodily Parts, in which it operatively Reſides.

On the contrary, were there ſuch a clear Idea, from above, infus'd into the Soul of Man, as is Inſtanc'd by *Des-Cartes*; by which every requiſite Notion, or Truth, might be perfectly apprehended: It were not conſiſtent with the Juſtice of the Almighty, if every Individual of Mankind were not equally Intelligible; on which account, one Man, might be as wiſe, in every Conſideration, as any other: And if ſo, there would be leſs neceſſity for Superior Magiſtracy, or Rule; could every Man be alike Diſcreet in governing of Himſelf.

In the mean time, *Des-Cartes* has introduc'd a new Character, on the Stage of Philoſophy, more

more compleat in Thought than is univocally Conſiſtent with the Figure of Humane Compoſition; by which is Perſonated the Dreſs and Mode of the Mind, as it is Cloth'd by the Senſes: From whence 'tis apparently manifeſt, That the Powers of the Rational Soul are frequently exerted ſuitable to the diverſity of Tempers that ſenſibly Exiſt, Improve, or Decay, in the Body of Man.

And this as Naturally Certain as Animal Creatures of the ſame Kind, vigorouſly Grow, or Impair; or are more Subtil, Active and Strong, proportionable to the Elementary Mixtures by which they Subſiſt. And therefore as highly preſumptuous, as to Argue againſt the Methods of Providence, if diſcuſs'd, Why Men and Creatures are ſo Conſtituted in their Several Capacities of Being, and Life? Which is above the ſearch of Man's Reaſoning, and only known to the Omnipotent Diſpoſer of whatſoever the Univerſe contains. All which, if duely conſider'd, ſufficiently explodes the Novel Scene of this Part of the Philoſophy of this Author, together with the Actual Character he gives to Mankind, in his Modalities of Intellectual Apprehenſion, as 'tis Perſonated by his Pen.

His

His Second *Particular* begins with a *Truth*, but ends with a *Falſehood*: Where he grants, *That the Mind, or Soul of Man, is more ſtrictly United to its peculiar Body, than to all other Bodies*: The Reaſon he offers is, *Becauſe we have an Apprehenſion of Griefs, and other ſenſible Advertencies that happen unthought on by us*; *of which the Mind, he conceives, could not be Intelligent, as it is meerly Cogitative, but as it is Conjoyn'd to a Certain extended and moveable Subſtance call'd* the Humane Body.

The Antecedent Part of this Head is undoubtedly true; which ſignifies no more, than that our Souls have more to do with our own Bodies, than with any other: And who could have expected, that *Des-Cartes* could have preſented his Reader with ſo vulgar a Speculation? Which has no other Tendency, than that every Man is as far apprehenſive as the Compliment of his Soul and Senſes will extend; and thus are Griefs, Paſſions, Affections, ſenſibly diſtinguiſh'd by us, when Appertaining to others: Becauſe the Rational Faculty ſympathetically complies with the Senſes in Conveying their Intelligence to Things, of that Kind, without us; as he that has felt a Wound or Pain in any of his Corporeal Parts,

will

will judge of the ſame in others. But how to think of any Thing that appertains to our ſelves, and not to perform it by help of the Mind, as a ſenſible Thinker; is a Riddle not to be unfolded by the Writings of *Des-Cartes.*

In his Third *Particular* he attempts to clear the Point; but, in effect weakens it, by this Feeble Propoſition of his: *The Perception of the Senſes does not direct us to Diſcover what is really in Things, but as they are render'd profitable, or detrimental to Humane Compoſition: Unleſs ſometimes, or by accident, we are Taught by the Senſes what thoſe Bodies are, and how they Exiſt. And therefore* (ſaies he,) *we muſt Depoſe the Senſes, and ſolely Judge by help of the Intellect according to the Ideas that are Incident to it, by Nature.*

Whoſoever is Maſter of a Grain of Reaſon, muſt be convinc'd, That a Contradiction is Imply'd by the manner of Argument, here urg'd by this Author: Who grants, That by the Conjunction of the Soul and Senſes, we perfectly Diſcern what is Beneficial, or Hurtful to us; but in that Act, do not certainly apprehend what thoſe Things are: Which is all one as to Affirm, That we may be Intelligent,

ligent, yet not undoubtedly aſſur'd of what we underſtand: Unleſs the Intellect be Refin'd by Idea, after his manner, as the moſt natural Way of being clearly Apprehenſive; and with ſuch diſparagement to the Senſes, That they may be, in his Opinion, neglected: Tho' common Experience might have convinc'd him, that they are, by Nature, Conſtituted Aſſiſtants and real Proofs of whatſoever is openly and demonſtratively underſtood.

But it ſeems he omitted theſe Conſiderations: And therefore in his next *Particular*, which is his 4th, he poſitively directs, as he would intend the Uſe of his Idea, by which he Argues, *That the Nature of Matter, or Body, does not Conſiſt in that it is Hard, Ponderous, or any other Manner affecting the Senſes; but only as it is a Thing extended in Length, Breadth and Depth: And for durition, or hardneſs, the Senſe diſcovers it no farther, than as the Parts of a Hard Body Reſiſt the Motion of our Hands meeting with it.*

Here he would exalt his Idea to the height of Dominion in the Mind, and level the Senſes below the Capacities that Nature has allow'd them: Nothing being more Philoſophically Irrational than the Suppoſition he

Inſerts, That the Nature of Body is only to be underſtood as it has Longitude, Latitude and Depth; and why not alſo as it is Weighty, Hard and Colour'd? Is not Air as much a Body as Iron, and yet perfectly diſtinguiſh'd by the compact Durition of the Latter, as its Eſſential Propriety? And as abſolutely different in Colour, could the diaphanous Subſtance of Air be as viſible to the Eye; and although it be not, we may conceive the Diſtinction, much ſurer, than we could by intruding on the Mind a conceited Idea; becauſe we are ſenſibly Aſſur'd, That no Corporeal Thing can have Being in Nature, without its colourable Property: And this as familiarly Certain, as that a Bay-Horſe cannot be Denominated a Horſe, if his natural Colour could be ſeparated from his Subſtance.

There are many Things that may be ſaid to have Colour, that are not genuinely their own: And ſo a painted Cheek, whether in Man or Woman, is no Dye or Complexion of Nature, but Artificially Colour'd: And we Judge of Pictures as they Reſemble the Life by the Colours apply'd to them by the Skill of the Painter.

And

And 'tis no leſs evident, that *Des-Cartes* has preſented his Reader with a very Fictitious Varniſh of his Pen; if he meant no other diſtinction of Colours, Relating, or Apply'd to Material Subſtances, than in this Place he mentions: And in Summ concludes, *That Weight, Colour and ſuch like Corporeal Qualities may be ſeparated from their Inherence in Matter; ſo that the Nature of the Subſtance, to which they belong, does not depend on any of them.*

And is not this a conciſe Manner of Idea, in this Author, by which he would have us believe, That Bodily Subſtance may have Exiſtence, and be ſenſibly perceiv'd without being diſcern'd by its genuine Shape, and Figure? If Colour, Hardneſs and Weight, with other Qualities appertaining to Matter, are defin'd Accidents in a Philoſophical Senſe; yet allowable ſuch as, when natural, are inſeparable Proprieties from Bodies to which they appertain? And 'tis ſome wonder, that this Learned *Monſieur* ſhould forget, on this occaſion, That noted Logical Maxim,

— *Quod omni ſola et ſemper accidit ſubjecto.*

So that the Idea of this Author, as it is here Apply'd by him, is ſo far from a Weighty, or

indeed a Colourable Notion, That 'tis as surely Confuted as a White Plum may be distinguish'd by the Act of Nature, from a Black one.

The next Step he takes, is to present his Reader with the Doubts of some Persons, who Determine, *That Bodies may be so Rarified, or, Condens'd, that they may have, by Rarifaction more Extension than when Condens'd.* To which Number of Dubitants I desire to be added: Because I conceive nothing more clear than the doubt he Delivers.

Is it not very evident, That Snow when dissolv'd, by Rarifaction, into Water is substantially Extended farther than before; as it may be observ'd falling from a Hill into a River? And is it not as manifest, That some Parts of Wood, when Thinn'd and Rarified by Fire, convert to Smoak? So that 'tis impossible to deny, that Corporeal Alteration is not Incident to Rarifaction, which gives it a variable and different Extension, if compar'd to the space it Precedently fill'd; and this amounts to Demonstration, instead of Opinion.

But he that will be Proselyted, by the Doctrine of *Des-Cartes*, must, in this Case be such a compliable Sceptick as to Renounce his sensible

ſenſible Conviction, and accord with him where he contends to Argue, That whoſoever, will attentively Think and admit nothing but what he clearly underſtands, will Judge, That no more is Effected by Rarifaction and Condenſation than Change of the Corporeal Figure. And this, in few words, is the ſumm of what is contain'd in his Fifth and Sixth *Particular*, that is worth a Remark.

The Reaſon he offers is, *That Rarified Bodies, having many Pores, are there Repleniſh'd with other Subſtances ; and by that means become Condens'd.*

This Conceit of his is as diſtant from Proof, as Fiction is from Truth: And nothing more obviouſly Anſwer'd; ſince 'tis Philoſophically Certain, That Condenſation is added to Bodies which are made more or leſs Solid, as their thinner Parts are proportionately expell'd by Rarifaction: And thus a tenuous Subſtance is gradually render'd more compact, and harden'd by the Fire; as is, in divers Kinds, Experimentally Obſervable: Which however producing Alteration of Figure in their Corporeal Extent; 'tis as they receive Solidity or Duration from the Capacity that their tenuous Parts have in order to Rarifaction;

on: So that 'tis not, as this Writer Infers, from any Intervals, or Cranies in Bodies, fill'd with other Bodies, that cauſes Condenſation; but ſo much of the Tenuity of their Compoſitions as being vaniſh'd by Rarifaction, leaves ~~them~~ more compactly Harden'd.

Suppoſe he had been ask'd, Whether the thin Subſtance of Air, or Fluid Body of Water, did Exiſt with any ſuch Pores or Inlets in them that might be Receptacles for other Bodies? He could not probably have ſolv'd the Queſtion, notwithſtanding 'tis very apparent, That Air is Thicken'd by Moiſture that exhal'd, by the Sun, is mingled with it. But Water being a groſſer Subſtance, is Condens'd as its Thinner Parts are by Heat extracted from it; and this may be diſcern'd in every ſtanding Pool, or Puddle.

All which is Equivalently acknowledg'd by him in his Entrance to his Seventh Head, Where he grants, *That there are no Pores in Air, or Water, that may add to their Amplitude, by giving Reception to other Bodies whereby they may be more Repleniſh'd:* Yet would have it paſs, in being ſuppos'd, for a Rational Fiction; but I expected his Proof, and

therefore

therefore muſt be excus'd, if I reject his Fable.

As for Corporeal Extent, caus'd by Rarifaction; he ſeems to allow none otherwiſe than as he would a new Body ſo Extended: Which is not Univerſally true; and may be ſo underſtood from the Example given already, of Snow Diſſolv'd, by Rarifaction, to Water; which, when Snow, was but Water Congeal'd: So that it cannot be properly ſaid to have a new Body but alter'd to the Fluid Subſtance which it had before.

The like may be Affirm'd of Lead, or other Materials, that when melted, and enlarg'd by Extenſion, do not loſe the Denomination of the ſame Corporeal Subſtance; in which Senſe, Lead, when Diſſolv'd, is as truely Lead, as it was in its precedent Exiſtence.

Examples might be added, on this Subject, did the Reply that I have made require farther Illuſtration; wherefore I proceed to his next Point, which he thus States:—— *Quantity and Number differ, only in Reaſon, from the quantitative or number'd Thing*; This Poſition he proceeds to Explicate by Affirming, *That the whole Nature of Corporeal Subſtance, may*

may be conſider'd, as contian'd in the ſpace of ten Feet, altho' we attend not the Meaſure of any ſuch Number of Feet: And by Converſe, (ſaies he,) *the Number Ten may be underſtood, as well as a Quantity of ſo many Feet, although we are regardleſs of its Determinate Subſtance.*

Here the gentile *Monſieur* renews his Addreſs, to his Miſtreſs of Thought, under the Notion of Idea: Which he endeavours to Compleat by ſuch a refin'd Mode of Philoſophical Courtſhip, That like a Platonick Lover, he ſeparates Senſe from the Motives he Endears. But I preſume, that his Amour has met with divers coy Reprimands from Reaſon, the moſt Celebrated Miſtreſs and Beauty of the Underſtanding.

And 'tis no preſumption, I conceive, if I Attribute a rational Succeſs to my Pen, which has, more than often, refell'd the *Carteſian* Idea in divers preceding Diſcuſſions: Wherefore I might refer my Reply to what I have already Written: Did not the reſpect that I have to the Abilities of this Author, tho' none to his Miſtakes, oblige me to prolong my Inſpection; together with an earneſt Deſire of being convinc'd, might I find Cauſe, from his Propoſals. But inſtead of meeting with any Motives

Motives of his, ſufficient to reconcile me to his Aſſertions, I may juſtly obſerve an Erroneous Relapſe to his former Principles.

And thus in his 8th *Particular*, that occaſions my Debate; He ſuppoſes, *That the whole Nature of Corporeal Subſtance contain'd in a ſpace of Ten, or any Number of Feet, may be underſtood without any Computation of it, as locally Commenſurable; and this to be accompliſh'd by a ſole Idea of the Mind, in his Opinion.* But is it poſſible to promote meer Thought, by an Inſenſible Act, ſuitable to the purpoſe he intends it? Can a Man that never underſtood how a Plain Superficies may contain Body, or is produc'd according to his Example, to a ſpace of Ten Feet; Conceive, or Delineate ſuch a Figure, without knowing that it is Compleated by Multiplying of 5 by 2?

Should a Mathematical Tutor Inform his Pupil, That it would be ſufficient for his Inſtruction, if by Mental Speculation he Imagin'd that there was, in Nature, ſuch a Thing as a Plain Superficies, tho' he did not apprehend that Longitude and Latitude were its Numerical Proprieties: Could Science be Improv'd by ſuch an Impertinent and Idle

Idea that can ſignifie nothing either to Theory, or Practice?

On the contrary, every Man muſt be as competently Intelligent, as was this Author, of the Qualifications of Lines that appertain to ſuperficial Content; and as certainly too, as the Dimenſions of any Number of Acres may be figuratively Included in a Square or Parallelogram, or he will profit little on this Queſtion, by Reading of *Des-Cartes*:

Who next proceeds to inform us, *That notwithſtanding 'tis a certain Truth,* (and ſo I think too,) *that nothing can be taken from Quantity, or Extenſion, but the Subſtance, to which they belong, muſt alſo be Leſſen'd: And convertibly, not the leaſt Part of Subſtance can be exempted; but as much of Quantity and Extenſion will be taken from it.*

This Opinion of his he alledges as oppoſite to the Tenent of others, of whom he ſaies. *there are ſome that conſider Corporeal Subſtance as diſtinct from its Quantity: Which Conception of theirs cauſes them confuſedly to think, that the ſame Subſtance may be term'd Incorporeal.*

Whether there was ever Man of ſuch a wilde Imagination may well be queſtion'd: Since nothing can be more abſurd than to Imagine,

Imagine, That Subſtance might remain, in any Kind Subſtance, without its proper Quantity; and next, notwithſtanding that Contradiction, or as he calls it confuſion of Thought, to ſuppoſe, the ſame Subſtance Metamorphos'd, by a myſterious Way of Thinking, to Incorporeal; which is no leſs contradictory to the natural Being and Definition of Subſtance, than if a Man ſhould determine, that Body could ceaſe to be Body: Becauſe Subſtance is inſeparable from Quantity, as its Corporeal Propriety; and therefore by no Notion, or Object of Senſe, can be deem'd Incorporeal. But notwithſtanding that the Incomprehenſible Idea of Incorporeal Subſtance is reprov'd by *Des-Cartes*, as Notionally Confus'd; the Senſe that he delivers in the 64th *Particular* of his Firſt Part, or Treatiſe of *Humane Cognition*, is ally'd to the ſame Abſurdity, as may be obſerv'd from my Remarks on that Head: Where he ſuppoſes *That Cogitaion and Extenſion may be conſider'd as Modalities of Subſtance*; *becauſe*, as he Affirms, *The Humane Mind may have diverſity of Thoughts*; *by which the Cogitative Subſtance, as he Deſines it, may at one time Imploy its Idea of Things, clearly diſtinguiſh'd, without the Aſ-*

ſiſtance of the Senſes; at another, operate in Conjunction with the ſenſible Parts of the Body: Is not this ſuch a manner of Idea as would render the Thinking Subſtance of the Mind with, or without Quantity; as pleaſes the Thinker? Which little differs from the Irrational Notion of Incorporeal Subſtance; if any Thing, by excluding of Quantity, might be poſſibly Imagin'd ſubſtantial.

From whence it may be inferr'd, That the Criticiſme offer'd by *Des-Cartes*, in this Place, in order to refell the Opinion of others, does conſiderably reflect on his own.

And thus I proceed to ſuch of his *Particulars* as occaſion my Remarks; which I ſhall Inſert no oftner than the Subject requires.

In his 11th Head, he reminds us of the Idea *that we may have of Body, by the Example he gives of a Stone, from which we may reject all that is not Eſſential to the Nature of Body: As if a Stone be melted, or pulveris'd, it does not therefore ceaſe to be Corporeal: We may alſo reject Colour, becauſe we frequently obſerve Stones that very pellucidly ſhine, as if they were without Colour. And ſo we may reject Gravity, Lightneſs, Heat and Cold, with All other Qualities; becauſe*

they

they are either not conſider'd in the Stone, or being Chang'd, the Corporeal Nature of the Stone is not alter'd with them.

Here methinks he makes a great Pudder to little purpoſe; or no other than to prove that which no Man ever deny'd: If there can be any Thing more Experimentally manifeſt than That Subſtance, by what means ſoever varied or Chang'd, will ſtill retain Quantity, as its Corporeal Propriety, not to be ſeparated from it by Force or Fire: So that the Eſſential Nature of Body cannot be deſtroy'd, tho' it be leſſen'd or divided into Innumerable Particles of the ſame Subſtance: But not ſo continue in the Qualities of Colour, Weight, Heat, Cold, Moiſture, or the like, that were its former Appurtenances: Becauſe Alteration muſt neceſſarily Change its accidental Qualifications, conſonant to the Philoſophical Maxim, *a non eſſe tale ad eſſe tale*: Which ſignifies, that it is otherwiſe, than it was in Figure or Dimenſion, together with ſuch like External Qualifications as it precedently had, and are naturally diverſified according to Corporeal Alterations.

But amongſt the Examples which he preſents to his Reader, as ſo many ſelect Jewels of

of Thought, I cannot but obſerve the blemiſh that I find in the Diamond of his Idea; where he ſuppoſes, That the Subſtance of ſuch a Stone may be ſo Tranſparent that its Colour might not be viſible: But how any Thing can be ſo refinedly ſplendid as not at all perceptible by its Colour; is not leſs abſurd, than to Affirm, that ſomething is ſeen without being diſcern'd: It being Optically, and Phyſically, impoſſible to be ſenſible of any Object of Sight, unleſs its Colour be ſufficiently viſible with its Subſtance.

True it is, That a Diamond may be ſever'd into Parcels of its Subſtance, and that its Splendours will proportionably leſſen with its Corporeal Parts: But not ſuitable to the Alterations made as to Figure, Colour, or Extent, in Bodies of weaker Complexion and Subſtance: For Example, Straw, or Stubble, will ſooner yield, in all their Capacities, to the Alteration enforc'd by Fire, or to any natural Method of Change; than Wood or Coal. So that 'tis not provable, as Affirm'd by *Des-Cartes*, That with every Corporeal Mutation may equally be rejected the above-mention'd External Attributes, that did appertain to their Subſtance; and nothing continue with them but

but Length, Breadth and Depth, the common Proprieties of Body.

To which he adds this Incompatible Propoſition; *That by Idea of Space, not Corporeally Repleniſh'd, may be comprehended an Idea of what is call'd Vacuity.* Was ever Fiction ſo perfectly ſuppoſititious as to Fancy, That Space had a Being, and not the Local Continent of Subſtance? Or that the Univerſe, the vaſt Womb of Nature, might, by its miſcarrying admit of Vacuity? Which, properly Conſter'd, amounts to the Production of nothing. Wherefore the Appellation, or Word Vacuity, can ſignifie no more than a curſory Accent of Speech: Or ſuch an empty Idea, as I may modeſtly ſay, is not ſeldom obtruded into the Writings of this Author.

Some of his ſubſequent *Particulars*, where he differenceth Space from Place, are indeed more nice, if not frivolous, than could be Thought to drop from the Pen of the Learned *Des-Cartes*, who takes it for granted, *That if any Corporeal Thing be remov'd from the Local Being, in which it was; we are not therefore to conceive, that its Extenſion does depart with it.*

Which

Which Poſition of his may be pertinently wav'd, by Affirming the contrary to be true: As what is more Eſſentially annex'd to the Comprehenſion of Body; than its due and proportionable Extenſion as it Relates to the Place by which it is contain'd? Wherefore if a Stone be mov'd from the Local Situation it precedently had; its Extenſion or proper Space, as its natural Capacity, does Inſeparably remove with it; and not remain, as this Author would Imply, as the ſame Extenſion, or Place, might be poſſeſs'd with other Bodies: Or under the confus'd Notion of Space not fill'd, with any Thing readily Imagin'd, we may be ſo vain to ſuppoſe, as he gives Licenſe to the Conception, That Indeterminate Space, if ſo Apprehended, may be thought Vacuity: Which he Infers, *by Reflecting on the miſapprehenſion we may have, that the ſame Local Extenſion does not Remain, tho' the Body, to which it appertain'd, be Remov'd.*

A manner of Inference Philoſophically unſound; becauſe, no Corporeal Subſtance can be taken from its due Place, unleſs its proper Extenſion, and Space, to which it belongs, be movable with it: Not that it may not leave behind, or after its Removal, the like

Local

Local Capacity; as it may at large, be ſaid to have been contiguous to that Subſtance: Or inſtead of its continuance there, the Space, that it before poſſeſs'd, is immediately repleniſh'd by the Acceſſion of ſome one, or more Bodies: And this perpetually Executed by the Act of Nature, touch'd by the Scepter of Eternal Providence: Which otherwiſe, muſt ceaſe to be, or vaniſh with the World, her Univerſal Habitation, by Annihilating her Exiſtence. And therefore exorbitantly Impoſſible to allow any Epithet to Vacuity, That by all the Repreſentatives of Nature is determin'd to have no Propriety within her ſpacious Dominion.

As improper is the Example he gives, in the ſame Paragraph, *Of a Perſon ſuppos'd to be ſeated in a Ship, and moves not although the Ship removes whilſt he ſits ſtill.*

But were his ſole Corporeal Extenſions, in Length, Breadth and Depth, in Motion, as he ſate in the Ship; his Local Space would Remove with him, without depending on the Sailing of the Ship.

Before he makes a Cloſe on this Head, *he gives a more than ordinary Inſtance of a Ship under Sail, and the Earth in Motion, at the*

ſame time, which, according to the Copernican *Syſtem he would Inſinuate*; but in general Affirms, *That if a Ship ſailes as far from Eaſt to Weſt as the Earth Revolves from Weſt to Eaſt, according to its Motion in the* Ecliptick, *as the* Copernicans *Imagine, a Man ſitting in the Ship does not Change his Place, becauſe the Local Determination both of the Motion of the Ship and Earth is to be conſider'd as relating to ſome Immovable Points of Heaven.*

This Ship according to his Suppoſition of the Earth's Motion, muſt be committed to the deſperate Conduct of a *Copernican* Pilot: For if the Ocean, together with all the Rivers and Streams that the World affords, be Affirm'd to compleat in Conjunction with the Earth, one Globulous Circumference and Figure; as is the Opinion of many Learned Philoſophers: The rapid and mounting Motion that the Sea muſt have, in being contiguous to the Earth's Revolution, conſidering that it is naturally Lighter, and therefore Higher than the Earth, would ſoon overwhelm the Ship, with vaſt Mountains of boiſterous Waves, in ſpite of the beſt Marriners Skill and Compaſs; and doubtleſs, in that Irreſiſtible Storm the Man he ſuppoſes ſeated in the Ship would be

be totally toſs'd from his Station. So that, if granted the *Copernican Hypotheſis* as it Implys thẽ Conjoyn'd and Revolving Motion of the Superficies of the Earth and Ocean, 'tis impoſſible to conceive how a Naval Voyage could be at any time perform'd; or the Intercourſe and Trade of Nations by Sea at this Day, or heretofore practicable; an Objection that gives no Inconſiderable Confutation to the *Copernican Syſtem*: Which whether or no perceiv'd by this Author, he ſeems, at leaſt, in this Place to be Indifferent, as to that Opinion, by granting, where he Concludes this *Particular*, *That it may be Thought if we pleaſe, that in the Compaſs of the Univerſe there are no ſuch Imaginary Points, and conſequently no Permanent Place as to the Being of any Thing; otherwiſe than by Thought we ſo determine.*

To which it may be Anſwer'd, That as to any fix'd Points, in any Cæleſtial Orb, there is no Cauſe to Imagine them, but as they Relate to the Commenſurable Motion of ſome other Thing, or by conceiving Imaginary Points in the Orbits of the Sun and Planets: Yet not at all true, if otherwiſe Applied; becauſe it is Philoſophically certain, That Motion,

generally Conſider'd, muſt be made from Point to Point gradually Mov'd with whatſoever is Moving; otherwiſe there could be no Mathematical Computation, or Time, eſtimated as Proprieties of Motion: In which Senſe it may be likewiſe Aſſerted, That the Sun and Stars no leſs than every other Thing, may be judg'd to Remove with ſuch Movable Spaces as naturally appertain to the Meaſure of their Extenſions, however their Diurnal, or Annual Revolutions, may be terminated by ſuch Points as may be deem'd fix'd in Orbits above. In ſumm whatſoever is Mov'd, muſt have an actual Beginning and determinate Period, or in a Philoſophical Senſe, *a quo, et ad quem:* Which is no other than the Movable Progreſſion, from Space, to Space, of any Individual Thing with all its Parts: Yet ſo as it may be ſaid, tho' in Motion, ſtill to continue the Place Incident to its proper Extent: And therefore incongruouſly Conceded by *Des Cartes*, That by Licenſe of Thought we may Think, that there is no ſuch Thing as Permanent Place appertaining to any Thing; which in ſome Senſe is as unnaturally Abſurd, as if one ſhould undertake to Contemplate, that there is no Corporeal

real Being: Since Body cannot be underſtood, either Moving, or not Moving, but as contain'd by Place, nor Place without Local and Bodily Exiſtence.

The difference that he makes in his 14th *Particular*, betwixt Place, and Space, is, *That in his Senſe Locality more expreſly ſignifies Situation, than Magnitude or Figure; and contrarily, theſe are more noted by us, when we ſpeak of Space: And thus we frequently mention one Thing as ſucceeding to the Place of another, although it be not of the ſame Magnitude or Figure.*

All which, amounts to no more than a Quibble of ſo many Words, that ought to have one and the ſame ordinary Application: And therefore very incongruouſly Aſſerted by this Author, *That by Place is more appoſitely underſtood Situation, than Magnitude or Figure* But how can any Thing be ſaid to be duely Situated, unleſs its natural proprieties be Locally underſtood? Nor leſs diſſentaneous is it to common Experience, ſhould his Notion be allow'd, or manner of Thought; by which might be ſuppos'd, That one Subſtance could genuinely ſupply the room of another, tho' not of the ſame Magnitude, or Figure: Which

is

is a contradictory Suppoſition; becauſe naturally repugnant, or rather Impoſſible, that any one Thing ſhould be ſaid to poſſeſs the Local Being of another, and not have its proper Attributes.

In his 12th Head, he had allow'd, *That if any Corporeal Thing were remov'd from the Space, or Place, in which it was; that we may believe the Local Being that it had before, poſſeſs'd by ſome other Body, or Bodies, or term'd Vacuity:* Which as a Notion fit to be Enroll'd amongſt Modern Abſurdities was Remark'd accordingly.

But in his 17th *Particular*, having precedently granted, *That in a Philoſophical Conception there could be no ſuch Thing as Vacuity, or where no Subſtance does Exiſt:* He ſeems in few words, to Recant what he Inſcrib'd in his 12th Head; acknowledging *That by cuſtomary Manner of Speaking, is not to be underſtood by the Term, or Word Vacuity, That Place, or Space can be Apprehended by it, in which there is nothing; but in which there are none of thoſe Things that we conclude ought to be there: And thus a Veſſel is ſaid to be empty, that appointed to contain ſome other Thing, is fill'd only with Air; or a Fiſh-Pool empty, though full of Water, becauſe no Fiſh in it.*

So

So that in effect, he grants, *That the Curſory wording of Emptineſs, or Vacuity, under the Phraſe of nothing, ought to be referr'd to the Predicament of Non-ſenſe.*

But vulgar uſage of Words is, and will be more practicably Retain'd, by the generality of Mankind, than any Conciſe, or Philoſophical Language of the Schools: Wherefore this Author might have ſpar'd much of the Inſtructions of his Pen on this Subject; becauſe ſurer known to Men of Science than any Reception it may probably meet with in the Dialect of common Perſons.

It was ever an undoubted Maxim, That Vacuity is Inconſiſtent with the Eſſential Being of Nature; becauſe Subſtance muſt be Attributed to whatſoever Exiſts by her Prerogative; and this as an old Truth, is ſufficiently acknowledg'd by *Des-Cartes:* Notwithſtanding that throughout his New Model of Philoſophy, there are few Tenents of the Erudite Ancients, however Celebrated by Time, that he does not undertake to Confute.

But where he Refells the obſolete Opinion, or rather Conceit of *Epicurus*, and ſome of his

his Predeceſſors, concerning the World's Original from the accidental Concourſe of Indiviſible Atoms, his Pen Conſpires with the Vogue of Learned Antiquity; which unanimouſly determin'd, That there could be no natural Exiſtence but in Quantitative and Corporeal Beings. So that the Opinion of Innumerable Atoms, or Thing next to nothing, as they were deem'd Inconſiſtent, or Exempted from having diviſible Parts; in Future Time became the Subject of Invention, or ſuch Poetical Alluſions, as by the fantaſtical Poem of *Lucretius* are committed to Peruſal. There we may Read how, by admirable Conceit, Things, call'd Atoms, deſtitute of Corporeal Proprieties, had Motion and Flight as their Wings were Imp'd by the Artifice of Fiction: And next, to fill the World with their ſuppos'd procreative Faculty, how they met and embrac'd like Male and Female.

I confeſs, That a fabulous Proceſs of the Original of the Univerſe may be more excuſable; becauſe the moſt exquiſite, and penetrating Ingenuities of Mankind have been to wonder, poſ'd in the account they have given of the World's Beginning; inſomuch that the utmoſt Inquiſition they could make has

has led them to ſuch an Extaſie, or Stand of Thought, That they have only been able to admire the Conſtituted Perfection of the World, they Inhabit, inſtead of diſcerning in what manner it was produc'd.

Whether the Imagination or Principles of *Des-Cartes*, as they have Reference to this ſtupendous Subject, will expand a proſpect to the Eye of the Intellect more requiſitely open than hath, as yet, been explicated by the profoundeſt Induſtry of Humane Science; will be ſeen, in ſuch of his following *Particulars*, where he Treats of the vaſt Conſiſtency and Appurtenances of the Viſible World.

And thus I come to his 21ſt *Particular*, by which he would have us underſtand, *That the World we Inhabit is boundleſs in Extenſion*: Becauſe, as he ſtates his Argument, whereſoever we ſuppoſe its Limits, we muſt neceſſarily grant, That beyond thoſe Imaginary Limitations are real Spaces, and ſuch as contain Corporeal Subſtances indefinitely Extended.

Againſt which, I offer a brief and obvious Exception, by ſenſibly proving, That as we cannot Imagine any Indefinite Extenſion or Space in the World in which we have Being, ſo were another World equally Vaſt and

Contiguous to this, it were impoſſible to apprehend a boundleſs Corporeal Space within its total Continent: By reaſon that uncircumſcrib'd Space cannot be the Receptacle of Material Subſtance; becauſe whatever includes Body muſt have commenſurable Attributes, or ſuch as, in a Geometrical Senſe, may be defin'd a Superficies terminated by Length and Breadth: Which demonſtrably profligates his pretended Idea of Indefinite Space or Extenſion. So little is, in this Caſe, the Doctrine of Nature beholding to the Philoſophy of *Des-Cartes.*

His next Conception, produc'd by his fruitful Idea, is, *That Heaven and Earth are of one and the ſame Matter, and that there is no poſſible Being of more than one World.*

The firſt of this Head he no otherwiſe proves, than as he takes it for granted, That if there were Infinite, or Innumerable Worlds, they would be all of the ſame Matter; wherefore he concludes there can be but One.

The Objection that may be made againſt his Affirmation, that the Matter of Heaven and Earth is the ſame; is, becauſe Heaven can be no otherwiſe underſtood than as it has a Select and Primary Diſtinction from all Bodies of Elementary

Elementary Composition: Which is apparently manifest in its Figure, Motion and Height, absolutely different, and far more Excellent than can be compar'd with other Substance: Wherefore *Zanchius*, writing of the Works of God, gives to its most Sublime and Refin'd Perfection, a spiritual Epithet; to which purpose the Learned *Pena*, in his Preface to *Euclid*, defines it an Animated Spirit universally diffus'd: To these may be added the Authority of *Jamblichus*, a very considerable Author, who in admiration of its Substance, allows to its Perfections, the nearest Attributes to Incorporeal Existence.

And who can doubt that the Judgment, of any one of these erudite Persons, in being more speculatively Refin'd, and naturally suitable to the wonderful Objects, Immensly distant from the Earth we tread on, should not have a deference from our Understandings highly Superior to the gross Definition given them by *Des-Cartes*? Who determines, That the Substance of Heaven and Earth alike proceeds from the Heap of Nature's common Materials.

And whereas he Aſſerts, in the latter Part of this Head, *That it is not poſſible to Imagine more Worlds than One.*

I think the contrary may be as certainly Affirm'd, as that the World we reſide in, has a natural Confinement: A Truth no leſs facile to Thought, than 'tis eaſie to delineate a Circle that in any Point ſhall touch another, and yet leave, betwixt them, no Intervening Space that is not ſubſtantially repleted.

But this Speculation, however readily exerted, cannot be the proper Entertainment of the Mind; unleſs I imagine a Similitude of Things and Beings, Correſpondent to the World in which I am: As by the diligence of Thought I might obſerve, in a devis'd World, the ſame Perſons, Creatures, Trees, and Fields, with ſuch other Objects, that had been viſible to me in this. Wherefore I take liberty to think, contrary to the Opinion of this Author, That the Intellect ſtrengthned by the Senſes, is ſufficiently enabled to Tranſport its Proſpect to the plurality of Worlds. To avoid which Imaginative Power of the Mind, he annexes to his Idea of Matter undeterminate Extent. A Notion abſolutely Inconſiſtent with the Nature of Subſtance in all its Capacities;

ties; which cannot have an Indefinite Being: And therefore no leſs abſurd than if ſuppos'd, that Matter, or Subſtance, could be actually Infinite.

In ſome of his following *Particulars*, he beſtows many Words on the Motion of whatever may be deem'd Matter, or Subſtance; but finding nothing of Conſequence to obſerve in moſt of them, or that occaſion any conſiderable Remark in being Diſſentaneous to what he delivers: I paſs to his 25th *Particular*, in which he Comprehends the main Fund of what he intends by Corporeal Movement; the Inſtance which he gives, is, *That any one Body, or Subſtance, in his Senſe, may be ſaid to Move out of the Vicinity of other Bodies, that were contiguous to it before, and as at reſt, into the Vicinity of others.*

By this Definition, he proclaims an endleſs War in the Campains of Nature; where the oppoſite Commotions and Powers of Individual Bodies, endeavour to poſſeſs the natural Beings of their quiet Neighbours. From which Problem, could it be prov'd, might be deduc'd a better Diſciplin'd Argument, in behalf of Exorbitant Potentates, when Moleſting, or Intruding into the peaceable Vicinities,

nities, and Provinces of others, than has, as yet, been urg'd on their Part: Becauſe it might be dextrouſly grounded on the Toleration and Conduct diſpens'd, by Imperial Nature, amongſt her ſubordinate Dominions.

This War of Nature, denounc'd by ſo Eminent a Philoſophical Herald as *Des-Cartes*, could not but Incenſe many Combats in the Schools of Science: But how far proſperous there, or diſallow'd, is not requiſite, in this Place, to Diſcuſs.

I ſhall therefore Imploy the Force of my Underſtanding, without being oblig'd to the Aſſiſtance of any Tribe or Scholaſtical Aſſociation, to attack his Arguments, where they deſerve the moſt Emphatical Oppoſition.

My firſt Aſſault, on this Head, ſhall be againſt the main Fort of his New-Modell'd Fortification; where, to defend his Principles, he Exerts the Artillery of his Idea, which, according to the Level of his Notions, muſt batter to pieces the entire Confederacies of Nature; and ſo ſeparate their Societies and Rooms in the Univerſe: That unleſs a more pathetical Expedient can be found than what he offers; Towns and Countries, with whatever they contain, may as ſoon be Remov'd

out

out of this World, and Situated in another, as one Corporeal Subſtance can Uſurp the Province, or Being of another: Becauſe no quantitative Matter but muſt, if Mov'd into the Place of any other, poſſeſs the Space that naturally appertain'd to its Exiſtence.

And whether, could he ſuppoſe, That a Bodily Thing could Remove, that is, by any means, Expell'd, by the Motion of another Subſtance from its proper Appartment? Since neither his Brain, or any other Man's, can by an empty Idea ſo diminiſh the World as that any Particle of it might be conceiv'd to vaniſh to Vacuity. Nor leſs Intolerably oppoſite to the Proprieties of Nature, is the Maxim he Inſerts of the Tranſlation of Material Things, into the proper Reſidence or Place of others.

Not that 'tis deniable, that Bodies are alterably Mov'd, or Chang'd by Effects of Rarifaction or Condenſation, and other ordinary Methods of Nature, as to their manner of Extenſion and Figure; but not as to the Space that Circumſcrib'd their Subſtances; becauſe it is impoſſible for them, for Reaſons before mention'd, to be naturally provided for, by any other Room, for their Exiſtence: And thus if any Receptacle, or Veſſel, be ſuppos'd fill'd with

with Earth, or Water, and thoſe Materials afterwards Remov'd; the Air will as compleatly repleniſh the ſame Compaſs or Space, as if it had been fill'd by the others before.

The laſt Example, given by me, ought to be underſtood of a preternatural, or violent Motion, enforc'd by the Hand of Man, or other Accident; by which a Subſtance that might be precedently in its proper Sphere, or Place of Reſt, is forcibly diſpoſſeſs'd of its Room by ſome other; when Nature to prevent Vacuity, her main Abhorrence, ſupplys the Place of the Body, Irreſiſtibly Remov'd, with another Subſtance: Which in her natural Method is never effected by her ordinary Alterations caus'd by Generation, Corruption, Rarifaction, Condenſation, and the like; or by which the more Weighty Body is Expell'd by the Lighter: No more poſſible then that the Earth, or any Part of it, ſhould mount from its Center unto the Ambient Air above it.

Wherefore the general Maxim of *Des-Cartes*, by which he would Infer the Tranſition of Bodies into the Vicinities and Spaces of others; is no leſs abſurd than contradictory to the Eſtabliſh'd Courſe and Laws of Nature in order

to

to her Preservation of Things either as they Move or Rest: Which should she otherwise admit, or according to this Author, there must be a Confus'd Interruption, if not a Penetration of Bodies, Philosophically impossible, not only of those that surround the Earth we Inhabit, but also of the Celestial Luminaries that Immensely Move above our Heads; if they Revolv'd into higher or lower Vicinities and Orbs than are naturally their own.

So perplexedly Inconsistent is the Opinion of this Writer, with the Beings of whatsoever the World contains. As Incompatible, to common Understanding is the Notion that he delivers in his 26th *Particular*, where he undertakes to prove, *That there is not more Action requir'd to Motion than to Rest:* Which seems, at first sight, a Paradox of a Novel Edition. But had he seriously consider'd, after the Inscribing of this Sentiment; and next had been ask'd, whether his Pen had not been more commodiously Inclos'd in his Desk, and his Hand in his Pocket, than acttually Imploy'd when he Writ this uneasie Sense? he would have clearly distinguish'd betwixt Motion and Rest; as Words that Imply their difference both in Name and Nature.

And 'tis ſome wonder, that *Des-Cartes*, who largely abounds with Fanciful Niceties, ſhould have ſo narrow a Perception as not to diſcern the broad Contrariety that Interprets Motion and Reſt ſenſibly oppoſite. To which purpoſe, *Ariſtotle* defines Reſt as the privation of Motion in whatſoever is naturally apt to Move. Wherefore the proper tendency that Things, in Motion, have to acquieſce in their genuine Place, is render'd by ſome Philoſophers, as their final Perfection: Becauſe nothing can be ſaid to Move, but it does alſo to its utmoſt Power, expedite its Innate Propenſity to be ſedate in its due Station.

If a Stone falls from any conſiderable Height, Experience aſſures, that it ſwifteſt Moves when neareſt to the Earth, the Center of its Being: But of its ſelf incapable of Active Movement when it comes to its reſting Place; all which is Heterogeneous to the Doctrine of this Author, who allows to the Acquieſence of any Thing no leſs Motion than it had when it Mov'd.

The Inſtance he gives is, *Becauſe we perſwade our ſelves, that our Bodies, at our Will, Move and Reſt, for no other Reaſon than that they adhere to the ground in being heavy*: And continues

continues to ſay, *That our Corporeal Weight, and other Cauſes, not Animadverted by us, reſiſting the Motion that we would incite in our Members, effect our Fatigues or Wearineſs, whilſt we Impute more Action, or greater Force to Inſtigate our Motion, than to cauſe it to Ceaſe.*

Here he creates an Idea, not unlike to the Poetical Fable of *Ixion's*, embracing of a Cloud inſtead of *Juno*; for what can be more obſcure to ſenſible Conception, than to Infer, as he does, That the Body by ſuſpending of its Motion, does as indefatigably Move as when tir'd by Action? Which is much the ſame as if he had undertook to prove, that 'tis poſſible for a Man to feel as uneaſie a Movement ſitting ſtill as when he was weary of Walking. Nor is the Weight of the Animated Body, as to it ſelf, or as it may be Diſeas'd by Motion, the only Cauſe of the Appetite it has to be reliev'd or eas'd by Reſt; but as Nature compells it, in being ponderous, to promote its loweſt Acquieſcence in its Immoveable Place Eſſentially Center'd in the Boſome of the Earth, as the Body has Room or Capacity to Deſcend: Nor would its Motion, till thither arriv'd, be Impedited or Fatigu'd by the Labour of its Corporeal Parts, any more than

a Stone, as it falls downward, can be weary of the Motion of its Subſtance. So totally Irreſiſtible is the Power of Nature, that no longer appropriates either Reſt, or Life, to any Individual Thing, than is neceſſarily conſiſtent with its Place and Being.

If by her Indulgence ſhe has Impower'd Mankind and other Animated Creatures with Corporeal Faculties and Parts, whereby they may diverſly Execute their Local Movements, as her gracious Diſtinction and neceſſary Endearments peculiarly conferr'd for the convenient Support and continual Subſiſtence of Living Individuals; 'tis contrary to the groſs Allay of their Bodily Compoſitions. Thus the Body of Man or Animal, may Move on the Surface of the Earth, or by the extraordinary Energency of Life be exalted towards a Mountain's top, when their Corporeal Subſtances, could they depart from the Conduct of Life, would with far more Acceleration tumble downwards.

Let a Man, of the moſt expert and vigorous Agility, take a Leap upwards, his Perſon ſhall come to the ground by ſwifter and eaſier Degrees than his Activity, by its utmoſt Force, could Aſcend.

Where-

Wherefore 'tis no painful Action, as this Author Inſinuates, by which a living Subſtance acquires its Reſt; but rather a natural and Irreſiſtible Motion that inclines it to attain its proper Reſidence: Which proceeds from no other Cauſe than the Quantitative Magnitude and Weight that Impoſes the Deſcent of every Corporeal Thing, as near as it can be promoted, to the Inferior Place of its Repoſe.

If a Feather falls from any Height, allowing for the hinderance that its Levity may receive from the Commotion of the Air; it will Deſcend no leſs proportionably to its Weight than a Lump of Lead muſt do if dropt from the ſame Altitude. And this is Mathematically certain, becauſe no Subſtance, whatever, can be ſaid to Move but as it has Commenſurable Parts.

Theſe Examples are ſufficient to Totter his Arguments on the Fund he erects for them: Of which there remaineth One that he concludes this Head with, and in his Senſe, very appoſite to his purpoſe. I wiſh that I had ſo found it, becauſe I love not to Diſpute where it can reaſonably be avoided. His Words are theſe,—— *There is as much Acti-*

on

on requir'd to the Removing of a Ship, that ſtands Still on Water any Length Forward, as it is to Move it as far Backward. From whence he would conclude, That a Corporeal Subſtance, in being Mov'd from and to the Place where it Reſted before, is equally Active.

Who could have expected that a Notion ſo Counter to direct Senſe ſhould be Inſcrib'd by *Des-Cartes*: Since 'tis not the Motion of the Ship, as he puts the Caſe, but the force of Hands that compells its Movement from and to the Place where it remain'd before. And therefore a pretty kind of Suppoſition; or if Term'd a Ridicule, the Application might well be excus'd, by which he would Intrigue his Reader to be Conceited with him, that any Corporeal Thing might Philoſophically Move, tho' naturally it did not Move at all.

Which perfect Contradiction, to approv'd Reaſon and Principles of Science, is very apparent in the Example he gives of the Ship enforc'd to Remove; which, of it ſelf, might have ſtood Still; or contrarily, had it not been ſupported by Water, would have ſunk, in being ponderous, as far downwards as it could Deſcend.

Which

Which gives us a ſound Aſſurance That the Proprieties of Motion and Reſt, of old determin'd, will not be diſcompos'd by the Novel Inſtitutions of this Author; whereby he would Change the very Grammatical Conſtruction in the Words of Motion and Reſt, by Converting their Significations into meer Modalities, or diverſified Actions of the Thing Moving, or as it ceaſes to Move.

But had it been demanded of him, Whether, if ſuppos'd he were faſt a-ſleep when he Dream't of this Tenent, his Body had no leſs Action than as if he had Imagin'd it to be really Walking or Running? I believe he would have otherwiſe diſtinguiſh'd Motion and Reſt than fancy'd, by him, in this Treatiſe.

Nor is the Similitude Incompatible with the Explanation he offers at the End of the Page I write of; where he tells us, *That by Motion is to be underſtood Corporeal Tranſition*, or as he calls it Tranſlation, *out of the Vicinity of Contiguous Bodies into the next Approximation of others; but not out of one Place into another:* Which is allowable if apply'd to the fix'd Capacities of Nature, as potentially ſhe may be Imagin'd to Circumſcribe every

every Individual Subſtance; tho' not, in common Underſtanding, actually True: Becauſe no Corporeal Thing can properly Move, unleſs its Commenſurable Place does Remove with it.

In which Senſe, no Subſtance can be conceiv'd to Move into the Vicinity, as he Terms it, of another, but it muſt neceſſarily carry its Bodily Space and Comprehenſion with it: No otherwiſe than a Man can be ſaid to ſtep into his Neighbour's Ground out of his own, and not Transfer with him the Inſeparable Space that before Circumſcrib'd his Body; tho' the Ground, that contain'd his Perſon, could not Remove with him into his Neighbour's.

Yet nothing can be deduc'd, from any of theſe Inſtances, that Implies, That Reſt and Motion are equally Active, and not Contrarieties; or only different Modalities, according to him, of whatſoever does Move or ceaſe its Motion.

But if his Idea of Corporeal Movement be follow'd to the Vicinity unto which he guides it; 'tis poſſible it might have acquieſcence there; ſince he undertakes not to prove, that it actually Mov'd after it came thither.

Other

Other *Particulars* I find of his, relating to his preceeding Notions of the Motion of Bodies; and to which he has annex'd the delineating of a few Schemes, or Diagrams. But finding in them no Demonſtrative Proof, or other concernment than what I have before Diſcuſs'd, or Anſwer'd: I therefore avoid the perplexing my Reader with ſuch obſcure Diverſities, which in my Judgment, he delivers on this Subject, or as extravagantly diſtant from either Philoſophical, or Mathematical Certainty, as Fiction is from Truth: And thus I come to his 31ſt Head, which I had alſo omitted, had I not obſerv'd, that he there attempts to unvail more ſpeciouſly his Myſterious Idea, than he had formerly done: The Propoſition he endeavours to prove, is, *That in one and the ſame Body there may be Innumerable diverſities of Motion.*

Notwithſtanding, he grants, *That no Individual Body can be underſtood, to have more than one proper Motion; becauſe,* as he Affirms, *it muſt be underſtood, when Moving, to recede from ſeveral Bodies reſting contiguous to it: However it may participate of Innumerable Motions if it be part of other Bodies that have diverſities of Motion.*

The Example he gives, is, *Of a Man walking in a Ship, having a Watch in his Pocket; the Wheels of the Watch Move but by one proper Motion, but participate of another, whilſt being Conjoyn'd to the Perſon that walks they compoſe one Part of Matter, and another as they are Adjoyn'd to the Ship, as alſo to the Ship fluctuating on the Water, and likewiſe as it is joyn'd to the Sea, and laſtly as it is ſo to the Earth, if the whole Earth be Mov'd.*

To which, if Reply'd, That in the entrance he makes into this *Particular*, he ſtarts an Argument againſt himſelf; the Conſequence will make it good.

For although it be true, That all Corporeals, whether Animate, or Inanimate, of ponderous Compoſitions, have a natural and direct Inclination to Move downwards; but not their ſole motional Property: A Man by the Power and Faculty that enables him locally to Move, can ſtep upwards as well as downwards; and by innumerable Actions and Motions of his Parts can abundantly vary his Poſtures, together with his Feet, Limbs, and Fingers: Impowr'd with uſeful diverſities that admirably proceed from the Provendential Support, that is, to wonder, beſtow'd on Humane Life; which

which could not without thoſe accompliſhments, conveniently Subſiſt: To which purpoſe, enough has been Inſerted in my precedent Remarks.

But as to the other Part of this Head, where he inſiſts, inſtead of other Proof, on the Example he gives of the Inſtrumental Movement of the Wheels of a Watch in the Pocket of a Man, as participating of the Motion of the Perſon, and alſo of the Ship: Is ſufficient without troubling my Reader with other of his Inſtances of like ſignification, to terminate my Reply: Which briefly is thus, —— The Argument he offers, is neither rationally, or Philoſophically applicable to what he Aſſerts; if conſider'd, That the Motion of the Parts and Wheels of the Watch are totally Artificial, and therefore cannot be naturally Contiguous to the Motion of the Man or Ship: No more than Invention attain'd by Art can be certainly deem'd the Method of Nature, that allows no participation to the Motion of Things, but as they are genuinely diſpos'd and influenc'd by her proper Conduct: Which cannot be equivalently Counterfeited by Humane Artifice, no more than 'tis poſſible for the Brain of Man to create a Fabrick

ſuitable to the Structure of the World, together with the Innumerable Materials and their diſtinct Capacities and Operations, contain'd by it.

A Speculation of ſuch undeniable Excellency, That had it been thought on by *Des-Cartes*, his Reaſon and Abilities in Science had otherwiſe diſpos'd the Credit of his Pen, than to have Inſerted the Incongruous Compariſon by which he would Parallel, in his Senſe of Motion, the Performance of Art, with the Action produc'd by Nature. Which is very different from the Epithet he gives to Motion and Reſt in his 38th *Paragraph*, where he determines, *That, by the Ordainment of God, Matter together with Motion and Reſt were, as to their ordinary Courſe, originally Conſtituted.* From whence he concludes, *That all Parts of Material Things, were primarily ſo diſpos'd by the Will of the Almighty, as by their divers Conſervations, the World's total Matter might be continually preſerv'd by the ſame determin'd Method, that every of its Particulars receiv'd when firſt Created.*

From which Immutable Decree of the Omnipotent he derives ſeveral Laws or Rules of Nature.

The

The Firſt of which he conſiders as her conſtant Induſtry and Prerogative, whereby ſhe would, as far as her Regalia's *extend, unalterably continue every particular Thing in its Manner of Being: And thus, whatſoever Mov'd, ſhould, by her Intention, be always Mov'd. So that if any Part of Matter repreſented its Motion in a Square, or other ſuitable Figure, it would ſo perpetually continue, did not ſome other Thing interrupt its Movement.*

All which might be conceded, were not Nature oblig'd to diſpenſe with, for Univerſal Convenience, ſuch Alterations, in her Methods of Rule, that ſhe accommodates to the frail Diſpoſition of her Elementary Subjects; whoſe Diſtempers, unleſs ſo prevented, would be more diſorderly, or confus'd.

For which Reaſon, ſhe neceſſarily waves her Original Intention as to the permanent continuance of her Subordinate Individuals; by Exerciſing, in a manner, againſt her Will, a Tyrannick Power, by which ſhe kills ſome Beings, to give Life and Repoſe to others: Which could not otherwiſe have room to Exiſt, were the Compaſs of the World far greater than its conceiv'd Dimenſion.

And

And thus we ought to apprehend the various Effects of Motion, as alſo ſuch Alterations as relate to Generation and Corruption, by which Things ceaſe to be, and others have Being. Tho' neither Motion, or any of its Concomitants, or Tendencies, here menti-on'd, can be reaſonably ſuppos'd, according to the Opinion of this Author, to endeavour inceſſant Movement, did not ſome other intervening Thing put an end to their Motion by obſtructing its farther progreſs: Which were to Affirm, That Motion were void of Deſign, if any Thing Mov'd regardleſs of its proper Reſidence.

If granted, That the Motion of one Thing may cauſe the Motion of another to ceaſe; 'tis not to be underſtood as any hindrance that its natural Capacity can receive, or the Intendment it has to Arrive where it ought to remain.

It being abſurd to ſuppoſe, That Motion, as it is appropriated to Material Compoſition, of which only we can be ſenſible, ſhould be actually, or potentially Imbu'd with a perpetual motional Faculty; which were to allow it Indeterminate, and therefore Infinite; contrary to the undoubted Philoſophiaal Maxim, *non datur Infinitum actu in rerum Natura:* And

as

as experimentally certain, as that a Man cannot always Run, or Walk.

The Second Law, which he Attributes to Nature, he thus delivers, *Every Motion, of it ſelf, is in a ſtreight Line, and therefore whatſoever circularly Moves, always endeavours to depart from the Center of the Circle it deſcribes.*

Before I enter my Replication to this Head, which, in ſome reſpects, is very queſtionable; I think fit to Inform the Reader, how he does here Diſſent from what he deliver'd in his 32d *Particular*, where he grants, *That Motion may be, not ſeldom, exceedingly Contorted, Twiſted, or Wreſted*; which he muſt intend by ſuch a lineal Movement as might be neither Direct, or Circular. And therefore it muſt have ſuch a kind of oblique Curvitude as cannot be comprehended by the Definition of regular Curv's, or ſuch as may be term'd Geometrically Commenſurable; which by Learned Mathematicians is ſolely Attributed to the Circle, *Parabola*, *Hyperbola*, and *Ellipſis*: The Reaſon they give is by demonſtrating, That no other Curvitudes can, in every of their Points, have a due Relation to ſtreight Lines; as it may be equally prov'd.

On

On which Mathematical Certainty is grounded their rejecting of all other Curv's, as Mechanical; becauſe, in particular, they cannot be Geometrical by right Lines applied to ſuch Figures; and therefore not to motional Things and Parts, by Indiſtinct Commenſurations; and ſuch as may expreſs their common equality.

Whoſoever deſires to be aſſur'd by Geometrical Delineament and Proof, to this purpoſe, he may Inſpect the Commentary of *Van-Schooten*, a *Dutch* Mathematician, on the Geometry of this Author. In the mean time this Obſervation is ſufficient to explain the egregious Miſtake of this Writer, as to the Place before-mention'd: Where contrary to the actual Performance and Method of Nature, that allows to every Thing Mov'd Commenſurable Space and Parts; he Allys the poſſibility of Motion to ſuch a perverſe and irregular Figure, as would render it abſolutely confus'd, inſtead of being orderly conſiſtent with the Certainty of Meaſure.

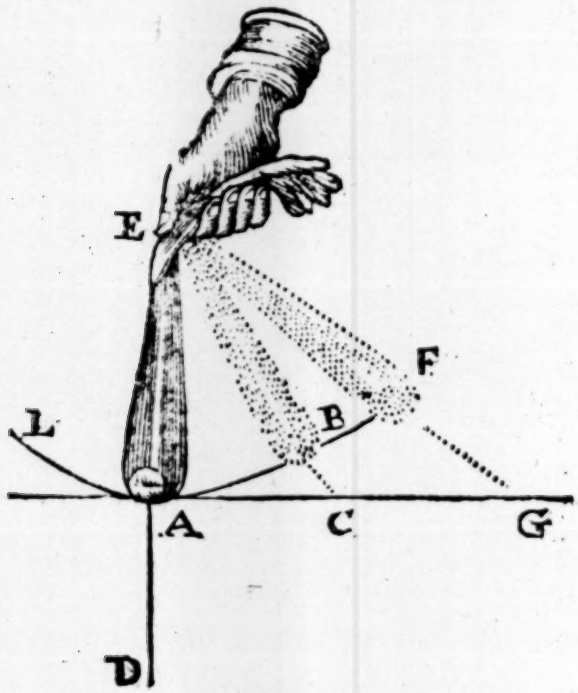
But now in the above-mention'd Second Law of Nature, as he defines it, he thinks 'tis very manifeſt, That Motion, by its ſimplicity of Operation, ſhould be continu'd

its ſimplicity of Operation, ſhould be continu'd in a ſtreight Line, but never in a crooked.

Which is true, if meant of ſuch Things, that by their Inherent Proprieties of Length or Weight, Aſcend, or Deſcend; which are always continu'd in a ſtreight Line: But are not ſo in every Thing that Moves, as may be evidently perceiv'd in that admirable Providence by whoſe Conduct the Celeſtial Motions of the Sun and Planets have a conſtant Circular Revolution. Which ſublime Manner, and excellency of Motion, is no otherwiſe naturally theirs; than ſuitable Gravity, or Lightneſs, is the Cauſe that Things ſo compos'd Move upwards, or downwards.

Theſe Examples are ſufficient to refell his general *Hypotheſis*, by which he would limit the genuine Action, of whatſoever does Move, to a direct Line; without excepting the Orbs above, That he well underſtood did Move otherwiſe.

To which purpoſe, he delineates a Diagram the ſame in Effect, with this that follows.



Let a Stone be ſuppos'd to Move by any Force, according to his Example, *in a Sling, as* E A *Circularly Mov'd in the ſame inſtant in which it is in the Point* A *determin'd to Move, any whether, in a Right Line towards* C; *ſo as the Right Line may be the Tangent of the Circle. It cannot be imagin'd to terminate Motionally Contorted, tho' it firſt comes from* L *to* A, *by a crooked Line; becauſe nothing of that Curvitude can be underſtood to remain in it whilſt it is in the Point* A. *But ſhould it then be out of the Sling, it would not*

Move

Move forward towards B, *but towards* C.—From whence he concludes, *That whatſoever does Circularly Move, would always endeavour to depart from its Center.*

Here he undertakes to give Nature a Law againſt her natural Legalities; if not ſuch a fictious Swing as would whisk her ordinary Operations, out of their uſual Courſe, into the Region of Fables.

It being very Demonſtrable that both Parts of the Propoſition, to which this Diagram Relates, are erroneouſly Applied.

As to the Firſt by which he would prove, *That all Motion does of it ſelf proceed in a right Line*; 'tis broadly untrue, if conſider'd, that 'tis no leſs Naturally than Mathematically Certain, That whatſoever Moves, muſt be progreſſive with the Proper Superficies and Space, in every Kinde, that appertains to its Subſtance: When a Man Walks does he not ſuitably Move to the Height, Breadth, and Depth, which, at that Inſtant, expos'd the Proportions of his Figure? The ſame may be Affirm'd of the Motion of Animate, or Unanimated Bodies.

On which ground, Geometricians determine, That a Line, of it self, has no Commenſurable Proportion compar'd to a Superficies; and therefore to no ſubſtantial Velocity, or Motion, in any Conſideration; otherwiſe than as, betwixt two different ſuperficies, lines may be allow'd a Relative Proportion; as in Squares, Parallelograms, and other Figures, that aſſimilate in Height, and Breadth. Wherefore to Aſſert as he does, That by Intendment of Nature, all Corporeal Motion is comprehended in a ſtreight Line; were all one as to Affirm, that a Mathematical Line, which, by *Euclid* is defin'd to conſiſt meerly of Points, that have no Parts, otherwiſe then ſuppos'd, ſhould ſingly Meaſure a Superficies the Continent of Body. Not but in a genuine Philoſophical Senſe, a Material Compoſition may have a direct Motion, allowing its requiſite Extenſion, Place, and Superficies transferr'd with it, either upwards or downwards, according to the Nature of its Subſtance, but no other lineal Rectitude, as is already Demonſtrated: Where I Inſtanc'd the natural Tendencies that Things Light, or Ponderous, have to their proper Stations; and therefore Inconſiſtent with the Example he gives in the

Diagram

Diagram of a Stone Enforc'd, by other Material Thing, or in a manner ſling'd from its direct Movement into the obliquity of a winding Figure; which muſt ſo detain it as never to depart, or 'tis not to be doubted, that the Weight of the Stone would cauſe it to Move downward towards its reſting Place: On which account, the Stone may be ſuppos'd to be taken from the Sling and flung at the Head of his Argument.

As intolerably extravagant is his other Principle, or rather Conceit that he annexes to the Law of Nature; whereby he would take it for granted, That whatſoever does circularly Move, has, in its ſelf, an Inherent proneneſs to Recede from its Center: Which is totally oppoſite to the Supreme Perfection of Circular Motion, if compar'd with whatſoever is directly Lineal: Becauſe it is the Meaſure of Lineal Movement without ſeparating its Terminations as the other does. Which is obviouſly evident in the Motion of a Wheel, where the Terms of its Motion are not ſo diſtinct that any one can be thought ſeparated from the other. But when a weighty Thing directly Move's from a Superior Place to an Inferior, it may truly be Affirm'd, that

the

the Terms, of any ſuch direct Motion, are by their Interval and Diſtance conſiderably ſeparated; which Separation Imports Compoſition of Terms; but none to be found in Circular Movement, as is manifeſt by the precedent Example.

Wherefore *Ariſtotle* acutely Defines the excellency of Circular Motion, by conſidering, that it is more Abſolute, or ſimply Compleat, than can be Attributed to any other Figure; by reaſon it is more Equal, and thereto e leſs obnoxions to Irregularity, and conſequently more durable: From whence he concludes, *That it was the moſt perfect and firſt of Motions*: As likewiſe a poſſibility of Being Eternal; becauſe no Part of a Circle can be ſaid to be its Beginning or Period; and where neither the Firſt and Laſt, of any Thing, is diſcernible; it may be allow'd, in a manner, Eternal. To which purpoſe, the Poet *Virgil* compendiouſly expreſſes the admirable Revolution of the Hours, Days, and Seaſons of the Year, by no more Words than, *In ſe circumvolvitur Annus.*

Which ſhews, that Circular Motion is not effected by any forcible Cauſe or Inclination that any Thing Mov'd can, by that means,

be endu'd with, whereby to depart from its Center, according to the deviſ'd Maxim of this Author: But rather a continu'd Providential and Natural Method in order to the Computation of Time, together with the Innumerable Benefits that from thence accrew to Mankind, with whatſoever the World Comprehends. And if otherwiſe reputed, 'twere as eaſie to believe that Providence might receive a forcible Period; or that the Sun and Planets have as natural a propenſity to drop from the Orbs in which they Revolve, as the Stone might have to fall out of the Sling, in the precedent Diagram. So that the Principle which he would Entitle to the Law of Nature, does more concenter with the Tenent of a Philoſophical Renegado, outlaw'd by her regulr Ordainments, than could be expected from the Pen of *Des-Cartes.*

I endeavour'd to be as piquant, as I might be, in my Remark on this Subject, becauſe he owns it for a main foundation on which he Erects not a few of his enſuing Diſcuſſions.

The Third Law that he gives to Nature, is, *That any one Subſtance, meeting with a Stronger*

Stronger, loſeth nothing of its Motion by its Occurrence to one of greater ſtrength, but leſſens its Motion by as much as it Transfers to the other.

Here he continues a perpetual War amongſt the Subjects of Nature ; and with that exorbitant violence, that he allows Victory to the Stronger on all conſiderations : Whereby he Interprets the ordinary Courſe of Things, tending to the Univerſal Preſervation and Conduct of Nature, no other than ſo many Hoſtilities Executed by the Strong againſt the Weak.

If Bodies are alter'd by the movable Effects of Rarifaction and Condenſation, they are not ſo Mov'd, or Produc'd by a preternatural and varied Violence ; but rather uſefully Convey'd and Diſpos'd to ſuch Receptacles of Nature where their Beings were wanted, and could not be ſupply'd without the convenient Alterations of Material Things. The like may be ſaid of Generation and Corruption Incident to all Elementary Compoſitions.

And tho' Nature, in ſome Senſe, may have the Artribute of Perpetuity ; there can not be the ſame permanency allow'd to Particulars within her Dominion, whereby they migth

might be equally Everlaſting with her ſelf; which would level her Inceſſant Prerogative, in common with her Subjects, or imply the Diſſolution of her ſuperlative Dominion: Too profound to be fathom'd by the moſt skilful Brain of Man, or be diſorder'd by any Speculation inconſiſtent with her Perfections: Which had this Author requiſitely conſider'd, he would not have enterpriz'd the Imbroyling of her Rule with ſo many turbulent Diverſities, or Anarchical Violence, that may be Imputed to his Principles as they derogate from her operative Contrivements, and Motion of Things in Reference to their due continuations and apt diſpoſure, agreeable to the Capacities of their Exiſtence.

But notwithſtanding he has frequently Catechis'd Nature according to the Model of his invented Principles, and eſpecially, in this Place, where he attempts to enact Laws as if Confirm'd by the touch of her Scepter: As alſo to preſent his Reader with ſeveral ſubſequent Rules, by which he would be underſtood to have prevented what might be Alledg'd againſt them.

All which I inpected with the cleareſt Eye of my Underſtanding, being no leſs deſirous

that my Pen ſhould have been convinc'd by his, than he endeavours the Eſtimation of his own.

But finding, by the ſtricteſt Inquiſition I could apply to his offer'd Probations, That I was led into a Wilderneſs of Notions, out of which no Thought of mine could give me Paſſage: I concluded, That it would be no ſmall eaſe to my Reader, and my ſelf, if I omitted ſuch of his Intricate Diſcuſſions, and delineated Schemes, as might have perplex'd the utmoſt Diligence of the conſiderate Peruſer. For which I have, in ſome Part, his own conſent; as may be ſeen in his 53d *Particular*, where he acknowledges that his precedent Rules, as to the Nature and Motion of Corporeal Subſtances, are not eaſily underſtood. And where there is not a facility of Perception, relating to the intended purpoſe; it can have no other Conſtruction than Impertinent, or Trivial, or at leaſt, not worth a labour'd Explanation.

And thus I paſs to his Concluſion, where I obſerve, in general, That he is more confident of his Premiſſes than was to be expected from ſo Ingenious a Writer.

In

In the Aſſertion he cloſes with, he delivers this Affirmation, *That no other Principles are admitted by him than are both Phyſical and Mathematical Certainties; becauſe by them not only all the* Phænomena's *of Nature are explain'd, but alſo Certain Demonſtrations given from them.*

If this peremptory Aſſurance be true; the Author of theſe Remarks has taken no ſmall pains to little purpoſe; but if not ſo, the commendation he has beſtow'd upon his Undertaking will be as little to his advantage, as the Indulgent Applauſe, uſually is, that Men Attribute to their peculiar Wit or Science: To which I might Reply, without diſreſpecting this Author, or the Modeſty that becomes my Pen, That I am not more in the Right than he is in the Wrong, whereſoever I have differ'd from him, either on the Philoſophical or Mathematical Account: As in reference to both, I may, without Oſtentation, Aver, That his Idea's, Propoſitions and Allegations, as they are tax'd by me; are rather Improbabilities, if not fictitiouſly introduc'd by him than naturally Ally'd to Proof or the Being of Things.

For tho' Mathematical Operations cannot be Refin'dly Contemplated, but as they have an Immaterial, or Spiritual Eminency relating to the proportionable Dimensions which they unerrably give to whatsoever may be regularly Defin'd of substantial Existence: Yet by a distinct Excellence, partake not at all of Matter howsoever Commensurated by them. And thus may a Proposition in *Euclid* be prov'd, if only, in Thought, delineated: But when apply'd to any Material Being, the Substance unto which it Relates, must as really, and in the same manner Exist, as is suitable to the Certainty of its Demonstration.

But not to be so understood by the Doctrine of *Des-Cartes*, who sets Nature at Work as he fancy's her Operations. Insomuch that a Substance cannot directly Move towards its proper Place of Being, but he conceives it more or less obstructed by some other Body, or whirl'd in a Line, of a different Denomination, to another Point of the Compass, or not to be Imagin'd whether: Much of the same Similitude with the Figure of the Stone in the Sling, as it is inserted in the preceding Diagram.

All

All which exorbitant Modalities and Motions of Things, as he ſuppoſes them to Act as they are either Hard, Flexible, Condens'd, or Fluid; are rather ſingular Fictions, or forcible Contrarieties, Complicated by his Brain, than concentring with the prone Facility of Natural Operations: Abſolutely Inconſiſtent, by a Philoſophical Maxim, with the prodigious and continual Violence impos'd on Cauſes and Effects; as by this Author is devis'd the Conduct of Nature. Yet after all, he is no leſs confident than to Affirm, that his Philoſophical *Hypotheſis* is Mathematically Certain in every Conſideration: Which, without other rebuke to the Phraſe of his Boaſting, is as far from being prov'd by Rules of Science, as Fiction may be from undoubted Truth: Or as if he had undertook to have delineated, out of *Euclid*, a Coat for the Moon, that ſhould have demonſtrably fitted her Figure in every Change of her Appearance.

If I have dealt freely with *Des-Cartes* where his Notions and Proofs were queſtionable; 'tis agreeable to his Example, who ſpares no Author where he thought him Taxable.

Tho'

Tho' I have been favourable in not extending my Exceptions ſo far as I might have taken occaſion: Which I hope the Reader will excuſe, or think himſelf oblig'd; becauſe I Entertain'd him with no more Words than I thought ſufficient to give a Period to my *Remarks on the Second Part of the Philoſophy of* Des-Cartes.

REMARKS

REMARKS

On the Third Part of the

New PHILOSOPHY

OF

DES-CARTES.

As they Relate to the

VISIBLE WORLD.

PART. III.

IF admirable, even to extaſie of Thought, by what manner of natural Operation, or ſuperlative Act of Providence, the Humane Compoſition, in Soul and Body, was Originally produc'd to that tranſcendent Degree, That his Intellectual Faculty, by lineal Deſcent and Right, continues him an abſolute Monarch of Underſtanding, in Reference

Reference to the Government of himself and other Creatures: 'Tis highly incumbent on Man, to be not only gratefully considerate of his being such; but also to acknowledge his utmost Celebration of the Supreme Cause of his wonderful Existence. Which mighty Consideration ought to transport the Prospect of Thought far beyond the Excellency conferr'd on Mankind in Soul and Person: Which can be but narrowly compar'd with the vast complex of the Universal World and the Innumerable Wonders surrounded by it.

Wherefore, if the best Inspection made by the Humane Intellect, in Contemplating the manner of its rational Being, be pos'd, by its own Riddle, above its Power to unfold: How stupendiously must then be Involv'd the most elaborate Attempt of Man's Understanding; when to the peculiar Wonder that is Exerted from his own Existence, he adds the Innumerable Miracles conspicuously visible in the Structure of the Universe? And what is yet more Transcendent, the admirable Author of what we are, and all we behold, seems Envelop'd, from the Eye, by his wonderful Fabrick and Works.

If

If the Learned *Des-Cartes*, in the beginning of this Treatiſe, ſeems not a little fond of his own Applauſe, by ſignifying to his Reader, *That he has Invented certain Principles*, by which, he conceives, *That Nature is unveil'd in her, as yet, unknown Receſſes*: He is far more modeſt, in his ſubſequent Expreſſions, *where he bows the Knee of his Philoſophy to the Infinite Power, Amplitude, and Beauty, of the Works of the Almighty:* Concluding withall, *That it is highly requiſite to avoid all ſuch confident Imaginations, whereby we might undertake, by uncertain Suppoſitions, to limit Omnipotent Power, or Abſtract in any Kind, from its Incomprehenſible Performance.*

This Concluſion I ſubmit to, but cannot approve the confidence of his Introduction contain'd in the Entrance he makes into this Paragraph; as the Reader may perceive by the Remarks I have made on his Firſt and Second Treatiſe; where, I preſume, I have effectually demonſtrated, That his Principles could not have an entire Birth-right from the Womb of Nature: Which, in ſubſtance, he does acknowledge by the Advice he gives, before he ends this Page, *That we ought not to believe, That, by Divine Determination, the World*

was Created meerly for our ſakes; or that it is poſſible, by any Thought of ours, to apprehend the End for which it was Ordain'd: Adding this Reaſon, *That many Things are now in Being, and heretofore, that were never ſeen or underſtood by Man, or any Uſe they could yield to him.*

In his 4th *Particular* of this Third Part of his Philoſophy, he confidently aſſures us, *That his Principles are ſo vaſt, and fruitful, that they not only Imply many more than are to be perceiv'd in the World we behold; but alſo far more numerous than we can Imagine*: To which purpoſe, he begins, in his Method, *with the* Phænomena, *or the main natural appearances; the Cauſes of which he commits to his ſubſequent Inveſtigations, or as, he intends them, Proofs of ſuch Effects as he, in this Place mentions.*

And next, he pertinently Rebukes *the too common Ignorance of ſuch that by their ocular ſimplicity erroneouſly judge, that the Sun and Moon, as they ſeem to appear, are therefore much bigger than other Stars. Which vulgar Miſtake is eaſily prevented by duely apprehending the Diſtance of the Sun and Moon from the Earth, and comparing of their Diame-*

ters

ters as they are now obſerv'd; to all which I fully agree.

Wherefore to recount how far remote the more than wonderful Celeſtial Luminaries are from our Earthly Habitation; I will not diſpute the Computation, he delivers, by oppoſing againſt his Account, the Elder Obſervations of Learned Aſtronomers: But rather ſo to compare Ancient and Modern Calculations, as thence may be apprehended the Indefatigable Endeavour and Induſtry of Men to render a ſublime Account of the wonderful Height, Figure, Beings, and Motions, that, to the amazement of our Eyes, continue their ſhining Bounties innumerably influenc'd for the Support of Humane Life, with whatſoever ſubſiſts within the Compaſs of the World: Which univerſal and admir'd Munificence, being highly conſider'd by Perſons famouſly Erudite, both in paſt and latter Times, exalted the Ambition and Gratitude of their Science to be as far, as was poſſible for them, requiſitely Intelligent of the conſpicuous Embelliſhments of the Skies; that they might be, from thence, the more Supremely ſenſible of the Bleſſings they receiv'd from Above.

But whilſt in this Tranſcendent Inquiſition of Thought, they Imploy'd the beſt of their Skill and Diligence, 'twas ſoon found too diſtinctly Excellent to be exactly Computed, howſoever they vary'd the Schemes of their *Hypotheſis:* As not being able by Art, Conception of the Mind, or any Inſtrumental Aſſiſtance, tho' proper for Commenſuration of Things familiarly near to our Eyes and Senſes, to reach, ſuitable to common Certainty, the moſt Approximate top of the Spheres of Heaven.

The diſtance of the fix'd Stars are allow'd by exquiſite Aſtronomers, as alſo by this Author, to be too Immenſely remote for any accountable Meaſure that can be given of them. And therefore I ſhall only take notice of the Sun and Planets, together with their Magnitudes, and Diſtance from the Earth; but as to their Diſtance from us, becauſe it is uſually by Aſtronomers accounted by Diameters, or Semidiameters, of the Earth, yet ſeldom declar'd by them, the Sum of their Meaſures as they may be applyed to Leagues, Miles, or the like: I think fit for the advantage of the Reader, to Impart how much in *English* Miles, as the moſt uſeful Computation,

on, a Diameter of the Earth does amount to. Which I prov'd by this Method; it having been Experimented by Judicious Obſervators, That one Degree of a great Circle above, correſpondent to the Superficies of the Earth, Anſwers to a direct Journey of 73 Miles, which multiplied by 360 Degrees, allow'd to the orbicular Form, or Circle of the Earth, the Summ will be 26280 Miles for the total Compaſs of the Earth: And becauſe the proportion of the Diameter of a Circle to its Circumference is, by approv'd Mathematicians, accounted as 7 is, very near to 22: According to which Method I computed a Diameter of the Earth to contain about 8327 Miles; and her Semidiameter ſomewhat more than 4163 Miles.

To apply which to Ancient Aſtronomical Obſervations, or ſuch of the accurate *Arabians*, mention'd by Learned *Gaſſendus*, as obſerv'd ſuitable to the *Ptolemaick* Principles, they are thus Inſerted according to the Mediocrity of each Planet's Diſtance from us.

After

Distant from the Earth.	In Semidiameters of the Earth.	Distance in *English* Miles.
The Moon.	49	203987
Mercury.	115	478745
Venus.	618	2572734
Sun.	1165	4849895
Mars.	4584	19083192
Jupiter.	10423	43380949
Saturn.	15800	65775400

After theſe, the moſt ſignal Aſtronomer was *Nicholas Copernicus*, a Canon of *Torunenſe*, who liv'd about 190 Years paſt: Some of whoſe Obſervations, as I read, were made at *Frueburg* in *Pruſſia* in the Year 1525, where the Elevation of the North Pole is 54 Deg. $\frac{m}{19}$: He was a Man of vaſt Ingenuity, however queſtionable his *Hypotheſis* of the Motion of the Earth; but if apply'd to the Sun inſtead of the Earth, there is no better Aſtronomical Syſtem, and ſo approv'd, by the Learned at this Day. Nothing Remakable is found in him as to the Magnitude and Diſtance of the fix'd Stars, more than that the Earth was as a Point if compar'd with the great Orb above; judiciouſly conceiving them too Remote for his applying to them any certain Rule or Demonſtration whereby to compute their mighty Diſtance: Of the Planets, he chiefly regarded the Sun and

and Moon; defining the Sun to be 3240 times bigger than the Earth; and the Moon no leſs than 860 greater, in which Computations he doubtleſs Err'd, as may be ſeen by the following Examples; but moſt egregiouſly miſtaken in the Account he gives of the Moon; ſhe being certainly diſcern'd much leſs than the Earth ever ſince the approv'd Invention and Uſe of the Teleſcope.

His next famous Aſtronomical Succeſſor was *Tycho-Brahe*, a Noble Man of *Denmark*; who is ſaid to have been learnedly Accompliſh'd, as alſo furniſh'd by his large Expence, with abundance of Inſtruments excellently proper for his great Undertaking: Wherefore the Computations he mentions are highly eſteem'd at this Day.

The Obſervations he made of the Diſtance, and Magnitude of the Planets, are theſe according to their Mean, or Mediocrity of Diſtance.

Diſtant from the Earth.		In Semidiameters of the Earth.
Moon.		56½
Mercury.		1150
Venus.		1150
Sun.		1150
Mars.		1745
Jupiter.		3990
Saturn.		10550

Whoſoever

Whoſoever is deſirous to Convert the Planetary Semidiameters into *Engliſh* Miles, may readily perform it by the preceding Example.

The Magnitude of the Planets compar'd to the bigneſs of the Earth, are theſe that follow,

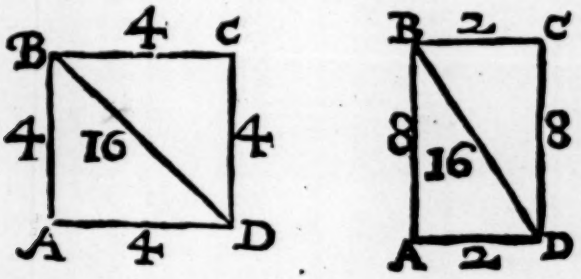
Moon.	Leſſer.	42	Twenty Times.
Mercury.	Leſſer.	19	Twenty Times.
Venus.	Leſſer.	6	Twenty Times.
Sun.	Greater.	139	Twenty Times.
Mars.	Leſſer.	13	Twenty Times.
Jupiter.	Greater.	14	Twenty Times.
Saturn.	Greater.	22	Twenty Times.

By theſe diſagreeable Computations, of ſo many eminent Perſons, may well be diſcern'd how far beyond, the reach of Science, are the ſhining Wonders above our Heads: Not more Impoſſible to be exactly Computed, than if a Man ſhould undertake to touch the Center of a Star with the end of his Finger; or to extend a Line, by any proſpect of Art, to the neareſt Verge of boundleſs Omnipotence.

Nor is it in the Power of Geometry in many Caſes, tho' more clearly demonſtrative than other Sciences, to expreſs its due ſignification

cation and Extent by numerical Computations, as is evident by abundant Theorems: Of which, theſe may be thus ſignally Inſerted.

In a Square, or right Angled Parallelogram, the Diagonal that, in either of thoſe Figures, is drawn from one Point of its Termination to another, is potentially equal, in ſuch Delineaments, to any two Sides that include the right Angle; as may be Demonſtrated, by theſe Examples, grounded on the 47th Propoſition of



the Firſt Book of *Euclid*, from whence it is prov'd, That the Square of B D, in either of the Figures, is equal to one half of the Figure to which it appertains: So that the Square of the Line B D, in both of them, is equal to the half of 16 which is 8: Tho' there be no ſuch Square Number as 8, or any true Square Root to be given of it; but inſtead thereof ſuch an Irrational Root as is 2, with a large decimal Fraction Annex'd thereto.

The like might be Affirm'd of a Line divided according to the 11th of the 2d Book of *Euclid*, by extreme and mean Proportion, ſo that the Square of the greater Segment may be equal to the Product of the whole Line and leſſer Segment: Which may be lineally Demonſtrated, tho' incapable of being Equall'd by any numerical Summ, or the literal Powers of *Algebraical Equations:* Which admirable Dignity of Lines, caus'd incomparable oughtred to Entitle the latter Propoſition, almoſt Divine; and as much is here prov'd in commendation of the Precedent.

Theſe Inſtances I think ſufficient to expreſs the excellency of Geometry; and withal of ſuch occaſional Importance, in reference to my Remarks on ſome Paſſages of this Author, that it Incites me to apply, according to the neareſt Epithet and Derivative of the verbal Name of Geometry; its moſt undoubted, and perfect Uſe, to the dimenſion of a plain Superficies: Which, in the Senſe of the great and wiſe Philoſopher *Socrates*, in whoſe celebrated School the admir'd *Euclid* was ſaid to Inſtruct, is ſureſt imploy'd on ſuch Supputations that have convenient Extents and Periods on the Ground we tread, and poſſeſs; and therefore

therefore more ſenſibly Computed, by the familiar Meaſure that may be taken from our Steps and Paces, when any Portions of Land are, by that Method, to be diſpos'd or accounted. But no ſuch lineal Certainty, was ever Invented, that could ſo elevate the Side of a Triangle, that it might undoubtedly aſcend to a Celeſtial Superficies, or Angles to be taken from above, by any Inſtrumental Perfection, whereby the Geometrical Proportions, of its other Sides might be duely reſolv'd. All which may be undeniably concluded by whomſoever ſhall Inſpect the Planetary Magnitudes, and Diſtance from us; as I have before Inſcrib'd them out of the different Records of famous Aſtronomers: From whence it may be evidently Aſſerted, That no Geometry, or Science of theirs, could demonſtrate their Syſtems, or Aſtronomical Calculations. Notwithſtanding, 'tis Ordain'd by the Almighty in Power and Conduct, that the Sun, in giving comfortable Light to our Eyes and Splendor to our Days, ſhould be more Certain in Motion, and uſefully computable, by never progreſſing from his Ecliptick Line, than any other of the Celeſtial Luminaries. And thus by the Prince of Stars,

the Sun, are the Accounts of Time and ſeaſonable Bleſſings of the Year continually diſpens'd.

Which is Emphatically expreſs'd by *Ovid*, in the Second Book of his *Metamorphoſis*, in theſe Verſes.

——Purpurea velatus veſte ſedebat
In ſolio Phœbus, claris lucente ſmaragdis:
A dextra lævaque dies, et menſis, et annus,
Sæculaque, et poſitæ ſpatiis æqualibus horæ:
Verque novum ſtabat cinctum ſlorente Corona:
Stabat nuda Æſtas, et ſpicea ſerta gerebat:
Stabat et Autumnus calcatis ſordidus uvis:
Et glacialis Hyems canos hirſuta Capillos.

But 'tis to be noted, That although the Sun, by the Munificence of Heaven, is the refulgent means whereby the Solemnities of Time are diſtinguiſh'd, and celebrated by us: Yet no ſuch abſolute exactneſs, tending to the Meaſures of his ſublime Motion, can be computed by us, as may render his juſt Place, or Movement equal to his Revolution in his mighty Orb, Term'd by Aſtronomers the difference betwixt his mean and apparent Motion: Which proceeds from his ſlower Progreſs

greſs in one Semicircle of his Annual Courſe than in the other; or becauſe his proper Journey in the ſix Northern Signs of the Eccliptick is ſomewhat longer, before diſpatch'd, than in the Southern; which is a certain Proof, that the Center of his Excentricity is different from the Center of the World.

But no ſuch Incongruity has ever been obſerv'd betwixt the due Motion of the Sun, and that which appears to us, as renders it Inſufficient for the convenient Uſe of the Dial, Hour-glaſs, or Clock: Which ought to be ſignally conſider'd, as a peculiar Benefit of uncomputable Providence, that permits us not to Err, where we can give no exact Account, in the neceſſary Computation, even by ordinary Means, of our Hours, by Day and Night.

He were much to blame that inſtead of being pertinently ſatisfied with the Extent of Science in Things of neareſt concernment, or becauſe the Sun, ſo far as is requiſite for him to underſtand, Illuminates his Time; would therefore Judge, to the grievance of his Brain, That he could as approximately compute the Arithmetical Diſtance of the Orb

Orb of Light, from any Part of the Superficies of the Earth, as by a Quadrant he could find the Sun's Horizontal Exaltation or Hour of the Day: Tho' Experience assures, that the most transcendent Skill has been variously frustrated in the Attempt; as may be perceiv'd by Examples in this Treatise, by me Inserted. Wherefore the sublimest Admiration of the far distant Wonders above us, is more certainly our Duty than any Task that can be given to Science, by which Men would reckon the remote Distance of the Neighbourhood of Heaven. But notwithstanding these discouragements, it may be allow'd commendable in such, That by the Eruditeness of their Skill would Ascend to the most compleat and neareſt Admiration of Things, no less obvious than perspicuously visible, as a welcome Discovery to all Mankind.

These considerable *Particulars* I thought fit to mention, as a proper Parenthesis, before my return to *Des-Cartes*; whom I find, as if somewhat deterr'd by the Mistakes of others, to offer his uncertain Computation; and which he only Applies *to the Distance of the Moon and Sun, from the Earth.* Which converted into Miles by the Rule before given: *The Moon's*

Moon's Diſtance from the Earth is 249810 *Miles. And the Sun's Diſtance, by taking a mean proportional Number betwixt* 600 *and* 700 *Diameters, becauſe he Inſerts no certain Number; I conceive to be neareſt the Truth of what he intends: Which mean Proportional is very near* 648, *which multiplying* 8327, *the Earth's Diameter in Miles, as before found, the Diſtance of the Sun from the Earth is* 5315896 Engliſh *Miles. Which Diſtances,* according to this Author, *Relate to the* Copernican *Syſtem of the Earth's Motion:* The Truth of which *Hypotheſis* will be effectually queſtion'd by what ſucceeds.

But theſe Diſtances, if true, and compar'd with the appearing Diameters of the Sun and Moon, as they may be perceiv'd by the Teleſcope, will prove the Sun much greater than the Earth, and the Moon much leſſer: And ſo they were found by the Obſervations of *Tycho*, precedently Inſcrib'd.

The Diſtance of the Five other Planets, from the Sun, as they relate to the beforemention'd Syſtem, he thus accounts: *Mercury above* 200 *Diameters of the Earth,* Venus *above* 400; Mars 900, *or* 1000; Jupiter *above* 3000; Saturn 5, *or* 6000 *Diameters of the Earth,*

Earth, diſtant from her. The *Copernican Hypotheſis* is ſo much the ſame *with his*; and ſo frequently Inſcrib'd in *Almanacks*, that I ſhall deſire my Reader rather to Inſpect any one of them there, than to trouble my ſelf with delineating of a Diagram, to ſo thread bare a Purpoſe here.

The difference *that he allows the Stars, not only as ſome of them are greater than others, but as the Planets receive their Illuminations communicated to them by the Light of the Sun*; Concenters with the general Opinion of all Aſtronomers.

Nor will I directly oppoſe the Imagination he Annexes, *by which he Attributes to every of the fix'd Stars, a particular Fountain of Light; and as diſtant from the Sun, as the Sun is from us:* Concluding, *That were we Situated as near the fix'd Stars as we are to the Sun, we might obſerve any one of their Magnitudes as much Illuminated as the Sun appears to our Sight.*

On which ground, 'tis poſſible *he may be*, tho' but in Conceit, as much in the right, as any certain Argument, or Proof that can be urg'd to the contrary; by reaſon of the wonderful appearance, and immenſe remoteneſs of the fix'd Stars from us. Notwithſtanding that

that the famous *Tycho*, as far as his accurate Obſervation could elevate his Computation, determines in general, that the fix'd Stars are not nearer the Earth than 13000 of her Semidiameters.

But in the 11th and 12th *Particulars* of this Treatiſe, this Author delivers a more unparallel'd Paradox than ever was Imputed to a Learned Pen: The Firſt is, *That the Earth, tho' a very opacous Body, is as perfectly enlightned by the Beams of the Sun, as the Moon*; wherefore he conceives the Earth to be alſo a Planet: And why might he not have Affirm'd the ſame of Glaſs, Iron, or any other ſolid Subſtance? ſince we are aſſur'd by common Experience, That every one of theſe are not only capable of being Illuminated by the Sun, but will alſo have their Shadows: So that according *to his Opinion*, any groſs opacous Matter may be eſtimated on a ſhining Day, no leſs a Madam, in Compoſition and Feature, than the Moon or Planet *Venus*.

It ſeems he forgot that theſe Stars continue their Light, whilſt the Earth has not Sun-Light longer than the Sun ſhines on her. But why he ſo cheaply compares *the Dominion of the bright Queen of Night, with the dull Earthly*

Lamp, on which we Inhabit, I connot gueſs; unleſs by ſome one of thoſe, *which he calls diſtinct, and unerrable Ideas*, he imagin'd, That his Perſon was elevated to a Market in the Moon, and there obſerv'd ſome Utenſils, in a Ihon of all Trades-Shop, marvellouſly reflecting the Illuminations and Beams of the Sun: And ſurely he might as well allow the poſſibility of theſe Examples, with whatſoever beſides has Being on Earth, as perfectly Exiſting in the Moon: Since by his Tenent; *a very capacious World may be thought encompaſs'd by Her.*

His other egregious Miſtake depends on the Former, which is, *That he fancies, that the Earth performs the Part of the Sun, by Illuminating the Face of the Moon, beheld by us, when ſhe is in her New Eſtate, or Conjunction with him.*

Which Notion is very falſe, both in a Philoſophical and Aſtronomical Conſideration: Nothing being more unnatural, than to Attribute Planetary Light, either Communicable, or Inherent, to the unrefin'd Body of the Earth; which can be no otherwiſe underſtood, by reaſon that there is no ſuch Thing as a pure Element of Earth; but rather its

Subſtance

Subſtance groſly Commixt and Corrupted, by the Intercourſe of the other Elements: And thus Air, Earth, Fire, and Water; as Uſe and Obſervation aſſure us, are impurely mixt. And ſhould the Earth, as ſhe does, and muſt neceſſarily ſo Subſiſt, receive Light or Flame from the Sun, in common with the Planets: Her corrupt Frame and combuſtible Materials would have been long ago totally burning; to the utter diſſolution of the Figure and Compoſition that ſhe now poſſeſſes: However Antecedent to the Opinion, of ſome Learned Divines, that defers her Conflagration to the Day of Judgment.

And this might have been effected with as much Facility, as a Burning-glaſs kindles a Pipe of Tobacco: Eſpecially if granted, the Earth a Planet, *according to this Author*, and always Moving; becauſe Motion where it is ſufficiently continu'd, Inflames every Thing that is materially capable to be ſet on fire; as is viſible in the Axletree of a Waggon caus'd by the Movement of the Wheel that round it turns.

The like might be determin'd in reference to the Moon, and other Motional Stars; if their Compoſitions were Elementarily min-

gled: But their Subſtance is more Sublime, and Excellent; if not ſuperlative to any Definition that can be given of their Nature and Manner of Exiſtence: As I doubt not is Emphatically prov'd by my Remarks on the 21th *Particular* of the Second Part *of this Author's Philoſophical Treatiſe*: To which I refer the Reader.

And whereas he would confirm his Aſſertion, by pretending, *That the Earth Illuminates, ſome part of the Moon, when ſhe is in Conjunction with the Sun*: 'Tis no leſs diametrically oppoſite to what we behold, in that State of the Moon, than it is to Aſtronomical Certainty; and why might not the Moon as well receive Light from the Earth, *according to his Doctrine*, when at her Full ſhe is ſometimes ſo Eclipſically oppoſite to the Sun, as twice a-Year he paſſes by the Nodes, or is near unto them, call'd *the Dragon's Head and Tail*, that ſhe appears totally Darken'd? Which can be no otherwiſe caus'd, than as the Earth is betwixt her and the Sun: But could ſhe then receive any glimpſe, or ſign of Light from the Earth, it would be as diſcernible as at any other Time: Which enough Confirms, That the Earth is no Luminary

minary Planet, and therefore none at All; as will be prov'd by what is to come.

In the mean time, 'tis not improper, on this Occaſion, to Explain the *Phaſes*, or Figure of the Moon, eſpecially when in Conjunction with the Sun; which, without the trouble of a Diagram, may be thus readily Expreſs'd.

'Tis not to be doubted, That the Moon, as ſhe moves round the Earth, has always one half of her Illuminated by the Sun; but not ſo as that half is always viſible to us: Tho' ſometimes more, or leſs, or nothing of her Enlightned Half appearing towards us; by reaſon, that as ſo many Semicircles, or as it were Semiglobes of the Moon's Compaſs, are turn'd to the Eye, or Earth; they cannot, conſidering their Curvitures, be diſcern'd, in Plain, by the Eye. And this differently happens, as the Light of the Sun to Sight, may be obſtructed by the Convex, or Mountainous Part of the Earth; or by the Intervening of Aerial, Vapours which cauſe the Face of the Moon, that is turn'd towards us, to be Repreſented more Dark and ſpotted, than otherwiſe, ſhe would appear. Which ſeveral *Phaſes*, or Figures, obſervable in every State, or

or Age of the Moon, almoſt never the ſame; proceed from no other Cauſe, than the diverſity and ſwiftneſs of her Motion, far exceeding all other Stars; as is well known to Aſtronomers.

Whence it is, that after her Monthly Change and Renovation of her Figure, ſhe ſooner or later Deſcribes, as it were, a Glimpſe of Light in a ſmall Arch of her Circumference: And ſuitably encreas'd and varied, according as the Diverſities of her Motions, and other accidental Occurrences, permit her to be beheld by us.

Which Manner of Appearance, in the bloome of her Light, does ſufficiently demonſtrate, That her Figure and Motion are Orbicular, and not Elliptical; as ſome of the *Copernicans*, or *Carteſians*, too confidently Determine.

The next Application of my Pen ſhall be in fitting my Obſervations to ſuch Particulars, as ſuitable to the main Intention of my Diſcuſſions, ought to be moſt conſiderably Inſpected, either as orderly Examin'd, or as I find them diſpers'd in his Treatiſe; omitting ſuch Things as are either Inconſiderable in themſelves, or not to be repeated, becauſe formerly Anſwer'd by me.

Of

Of which the Firſt requires a Supreme Mention, as it egregiouſly directs the Proſpect of the Humane Intellect to the contemplating of the reſplendent Fountain of Light, diffus'd by the Sun; by whoſe munificent Beams our Days are Bleſs'd; and the Moon and Stars, the wonderful Torches of Night, kindled for the direction of our Eyes.

How difficult is it therefore to conceive the remote Nature or Being of ſo Tranſcendent a Miracle notwithſtanding that we receive its commodious Benefits, as they grow with our Hours? Which ſhews how far, beyond the reach of our Underſtandings we are made happy from Above. On which account I cannot but admire the curſory Definition that is deliver'd by *Des-Cartes, by which he would Attribute to the Sun an Epithet not more Refin'd, than what may be ſignified by his general Notion of a flaming Subſtance: But grants,* as he cannot do otherwiſe, *That the Sun does not Inflame in reſemblance to Fire we uſe:* If it did; our Earthly Habitations and Subſiſtence would be conſum'd to Aſhes.

But,

But, notwithſtanding, the Word Flame, *as he Inſerts it*, is not allowable, becauſe we cannot be ſenſible of any Thing that flames, but we muſt alſo apprehend, that it has a burning Capacity: And ſo we underſtand the Flame that proceeds from Lightning that burſts thorough Clouds with Thunder. But no ſuch kind of violent Heat or Burning can have Emanation with the Innumerable Raies or Beams of the Sun. There are divers Things that may be ſaid to have Heat, and yet no Flame: As the Warmth that a Man feels, or reſides in the Temper of his Body: And thus Heat may be properly term'd a Corporeal Quality; as alſo, that it may be communicated from one Material Being to another: But in the Sun there can be neither Flame, or Heat, diffus'd from his Subſtance; which is very evident in Mountanous Situations, that, however high they Extend, and therefore nearer to the Sun, are far Colder than Inferior Regions: Which could not, be if the Subſtance of the Sun were naturally Hot, *or a Flame*, in any kind, as defin'd *by this Author.*

Againſt whom the general Opinion of moſt approv'd Philoſophers is fully oppos'd by

by denying, That the Elementary Qualities of Heat, Cold, Moiſture and Dryneſs, are either Inherent or directly proceeding from the pureneſs of Light tranſmitted from the Sun and Stars: As alſo that Experience aſſures us, That ſometimes, when the Night is abundantly enlighten'd by the Moon and Stars, their Nocturnal Motions account colder Hours than if the Night had been Dark and Clouded. And comparatively the ſame may be not ſeldom obſerv'd in a ſhining Day, when the Aerial Cold is not at all profligated by the Splendors of the Sun; but rather continues more frigid than if his Diary of Hours had, for that time, Revolv'd in a Miſt.

How then does it come to paſs, that the Sun and Stars, which only diſpenſe their Illuminations to the Day and Night, and refinedly Exiſting above whatſoever Purity that can be ſuppos'd moſt Excellent in Elementary Compoſitions; ſhould notwithſtanding be conceiv'd to Influence ſuch Qualities, or other Subſtances, which they have not in their own?

The beſt Account given by the Erudite in Philoſophical Science is, That the ſhining Radiations of the Sun and Stars by their Motion, together with ſuch Parts of the Air and

other Bodies moſt contiguous to their Revolutions, and the commixture of Celeſtial Beams convey'd, do operate in a wonderful Method, on inferior Subſtances, which is the ſoundeſt Reaſon, that they can render, or cauſe of the Variations of Heat, Cold, Moiſture and Dryneſs, that as ſo many accidental Effects, and admirable Operations, are beneficially diſpos'd from above.

On which ſtupendious Conſideration, the ſafeſt Determination ſhould be rather ſublimely to admire, than to Define the miraculous ſhining of the Stars and Sun; or Term their Illuminated Subſtance, according to the Tenent of *Des-Cartes*, *no other than may be liken'd to a Flame produc'd by Fire*: Nothing being more unadviſably Raſh, than to be inquiſitive of ſuch Exiſtencies, Cauſes and Effects, that, by the Conduct of Heaven, are conceal'd from us.

His other Miſtake, and I preſume ſo to name it, is, *That he Affirms the Sun as abſolutely fix'd to a Point, in his Orb, as the Stars are in the Firmament above him*: By which determination he takes from the Sun the Glory of his Ecliptick, or Annual Progreſſion. And as to his Subſtance, and Manner of Being, he defines

defines it no other *than very fluidly Compos'd and Moveable; as alſo perpetually Diſcipated and extinguiſh'd by ſome circumjacent Matter: But ſo as when any Part is diſpers'd or extinguiſh'd, the Sun is immediately repleniſh'd with other:* And I conceive he would be thought to Imagine the ſame manner of Exiſtence relating to the Number of Stars and Planets. But as to the Term of Fluid, which he apply's to the Subſtance of the Sun; it can neither in a Grammatical, or Philoſophical Senſe, be otherwiſe Conſter'd than as the Word is appropriated to ſome moiſt, or wet Matter that Moves with a feeble Current: And thus as he ſtates the Caſe, ſomething is always ſliding into the Sun, whilſt as much ſlips from his Subſtance.

But could he judge, or any Man for him, That the Alteration he mentions in the Sun, might not too nearly reſemble, or be properly Interpreted an Elementary Change, in as mean a Source as concurs with Corporeal Alterations familiaar with us: It being impoſſible ſo to diſtinguiſh the Supplement, or Diminution of any Material Thing, that it may not have a Natural Tendency to Generation, or Corruption; which muſt be Imply'd, as

the Proprieties of Subſtance, whereſoever it is alterably varied in Proportion or Figure.

The fix'd Stars he grants, *more Immenſely diſtant from us than can be probably Computed*; and I believe he is in the right. But I think he may be as much in the wrong by his Inventing of ſo many ſeparate Orbits, Motions, and Diſtances, upwards and downwards, from one another; as by Imagination he has remov'd ſome Thouſands of Stars from the Conſtellations to which all Former Aſtronomers determin'd them fix'd: As alſo, *by deſining of them no other*, to whomſoever will accept his Hypotheſis, *than in Grandeur and Refulgency equal to the Sun, were they as near our Eyes*; but wherever they are, *he continues them faſten'd to their ſingle Circumferences in the ſame manner as he allows the Sun:* So that, according to his Opinion, had we longer Opticks, we might behold every one of them, in a ſeparate Sphere, as fully Conſpicuous as the Days bright *Phœbus*. But after all, he offers not ſo much as a plain Triangle to prove his Conceit.

Some Schemes he has rais'd *in which he ſo confuſedly Repreſents, and as it were Embroi-*

ders

ders the above-mention'd Spheres of Stars; and by ſo many Obliquities and Figurative windings, together with their Curvitures on all ſides, upwards, and downwards, that there cannot be diſcern'd, amongſt them, one Section of a Cone, or conical Figure, that can be Geometrically deſcrib'd.

The Subſtance of the Heavens, as alſo their Vicinities, he calls *Fluid; into which he Infuſes abundance of liquid Matter,* that may be compar'd to a Whirl-pool, *and theſe he denominates* Vortices: And next, lets go, amongſt them, as he finds occaſion, *ſuch deminutive Subſtances,* which he Terms *Moving Globuli*; or rather *ſwimming Sparns of Matter,* much of fictitional Reſemblance to the devis'd Atoms of *Epicurus.*

By theſe Things, fancifully Imploy'd, *he undertakes to Revolve all the Motional Stars, together with the Earth, which he takes for a* Copernican *Planet, inſtead of the Sun, that he exempts from Motion whether Diurnal or Annual.*

His Diagrams, to this extravagant purpoſe, I leave to the Inſpection of the Reader, as they are to be found in his Book; being not deſirous to Cumber mine, or puniſh my

my Brain and Fingers, by copying of ſuch of his Draughts that I conceive are Improperly Applyed.

The main concern that I ſhall chiefly inſiſt on, ſhall be the Plea *that he makes for the Motion of the Earth inſtead of the Sun*; which I ſhall queſtion, before a very Supreme Tribunal, as he ought to be Philoſophically and Mathematically accountable.

That the Earth is Globulous, or naturally Round by the Coition and Knitting of its Parts to its Center; is alſo Aſtronomically prov'd, becauſe to ſuch as directly Travel towards the North or South Points of the Meridian, the Pole appears either more or leſs Elevated or Depreſs'd: Moreover that going farther Eaſtward, or Weſtward, the Eye may behold ſome Stars Riſe ſooner, or Set later than others. To which may be added, that the Moon, the more Eaſterly Eclips'd, is, by her proper Motion, as it were backward from Weſt to Eaſt, more Hours from the Meridiam, or Midnight, than Weſterly Eclips'd.

By the Globe of the Earth is comprehenſively meant, as Coſmographers Determine, its being ſurrounded, or being continu'd with the

the Orbicular Superficies of Water, as its Parts appertain to one and the ſame Center with the Earth: To which may be added the common Experience of Navigators, who Sailing from a Port diſcern the Convex Superficies of the Water above the Land.

That the Earth is plac'd in the Center of the World is Philoſophically prov'd; becauſe whatſoever is ponderous, within the Compaſs of the Univerſe, naturally tends downwards, or which is all one, to the Center of the Earth; from whence ſhould ſhe Aſcend 'twere no leſs than to Recede from her Center, on which ſhe is pois'd by her own Weight, in Moving upwards; all which were abſurdly Impoſſible.

By undoubted Aſtronomical Obſervations 'tis certainly prov'd, that the Earth is the Center of the Univerſe: Otherwiſe the World could not be divided into two Hemiſpheres; becauſe neither more nor leſs than ſix Signs of the *Zodiack*, above the Earth, are at any time viſible: As alſo, that the Moon could not be Eclips'd in Diametrical oppoſition to the Sun, if the Earth did not Intervene.

And tho' the Globe of the Earth does Circumferentially contain near 26280 *Engliſh* Miles,

Miles; it is but, as it were, a Point if compar'd to the Firmament, or Orb of the Sun, above: To which may be added the obvious Obſervation Demonſtrated by the Hour-Lines of every Dial; from whence it is very perceivable, that the Shadow Moves no leſs Regularly, about ſuch Centers, than it ſurrounds the Center of the Earth.

Nor could any Artiſt, for the Uſe of his Profeſſion, raiſe a direct Perpendicular apply'd to any Height, or Level; if his Hand, Line and Plummet, were rapidly Revolv'd by the Motion of the Earth: Which muſt, by its ſwift Acceleration, were there Truth in the *Copernican Hypotheſis*, Move, according to Learned Computation, at leaſt 1111 of our Miles in one Minute of an Hour: A Revolution far more allowable to the Sun, as his Subſtance is defin'd, in a manner Spiritual, by erudite Authority, than to the heavieſt of Bodies, the Earth. Some undertake to alledge, That the Motive was, becauſe that by his Syſtem he avoided ſome Epicycles and Circles that had been with greater difficulty us'd by *Ptolemy*: Which may be allow'd on that Conſideration, or as, *mutatis mutandis*, Aſtronomers at this Day apply his Theory to the Sun inſtead of the Earth. And

And if Affirm'd, as the *Copernicans* uſually argue, That extraordinary Motion ought rather to be Conceded to the Earth than the Sun, by reaſon that the Earth is ſo very ſmall, if compar'd to the vaſt Dimenſion of the other: The Anſwer is, *That a ſwift Horſe will ſooner diſpatch a long Journey, before an Ant can go a Yard.*

Whoſoever would adhere, notwithſtanding the convincing Allegations here mention'd, to the *Copernican*, or *Carteſian* Syſtem; might find his Opinion Ridicul'd by very young Experience: Inſomuch that the Boy, who found the Rooſt or Neſt of a Bird this Minute, might ſeek it, if he could, above a Thouſand Miles at the next. Nor could the Bird find, by the ſwiftneſs of its Wing, when the Earth rapidly mov'd Eaſtward, better then the Boy, its Rooſt, or Neſt; as it deſign'd to fly towards either Weſtward. And doubtleſs the Brain of the Boy, and Bird, might be giddily diſcompos'd by the haſty Progreſſion of the Earth, which could not but totter every Thing that belong'd to her Surface: And much more eaſily Imagin'd, that Men had their Heels ſtruck up as ſhe Revolv'd, than that one of Mankind could, in that wonderful Cir-

cumſtance, Stand, or Walk, on her Superficies. But what might become of Houſes and Edifices, if Revolving with the Durnal Motion of the Earth? Why ſurely the beſt that could be hop'd from the *Hypotheſis*, by the World's Inhabitants, would be, That their Chimneys might ſmoak when arriv'd with them, to their *Antipodes*: Since, as ſure as Check, the *Copernican* Syſtem would whirle um thither.

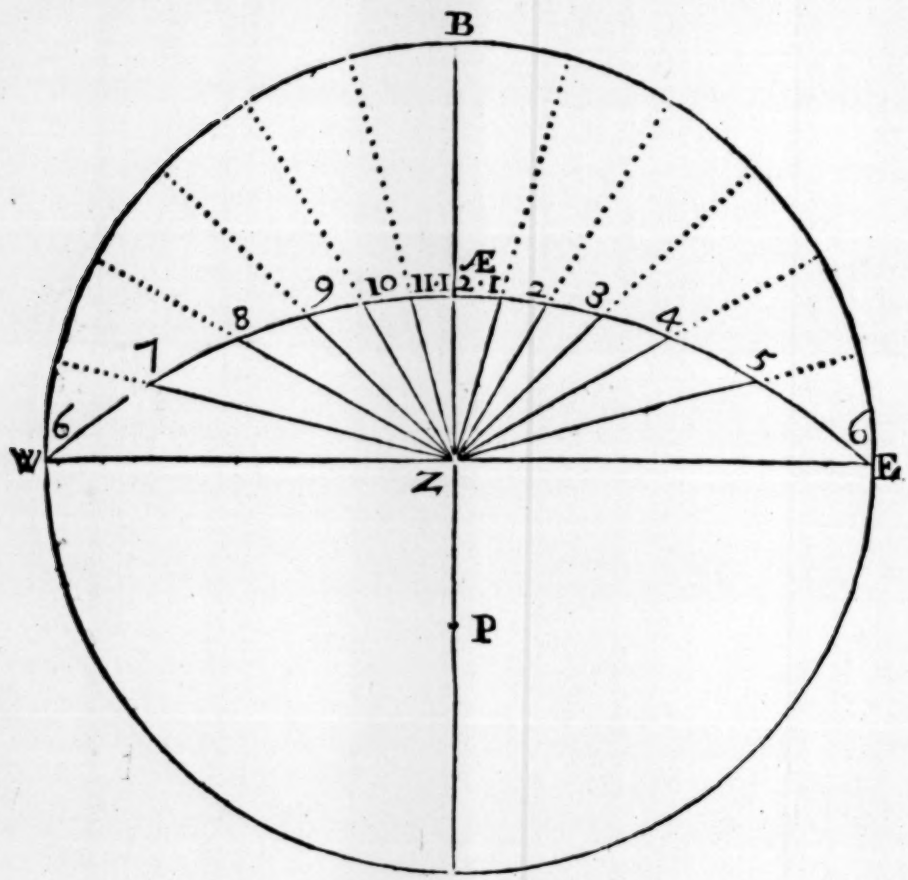
But 'tis a Doubt, they would be confuſedly ſhatter'd and toſs'd from their Foundations, before ſwing'd to that Point of the Earth's Diameter. If Men will not be laugh'd out of the Conceit of the Earth's Motion; they may, if they pleaſe, conſider the ſoundneſs of the Reaſons here offer'd, in a Philoſophical and Aſtronomical Senſe: And 'tis probable they may, that way, confute their precedent Tenent.

To be plain, I have mention'd no Abſurdities that are not naturally Incident to that *Hypotheſis*; as certainly, as no Habitation, in the known World, could a Moment continue its due Situation, either as to Heaven or Earth, if they were granted: To prove which, let the following Diagram be well Inſpected,

in

in which the Circle W, E, B, Repreſents the Horizon, E, Æ, W, the Equator; B, Z, P, the Meridian; E, W, the Eaſt and Weſt *Azimuth.* Let the Earth, according to the *Copernican Syſtem*, be ſuppos'd to be in the Equator E, Æ, W, on any one of the Equinoctial Days of the Year, and in any one of the Hours of the Day, on both Sides of the Meridian B, Z, P; as they are here ſignified on the Equinoctial W, Æ, E: Let Z denote the *Zenith*, Z, Æ, the Latitude of *London* 51 *deg.* 30 *m.* The Lines drawn from the *Zenith* Z, and continu'd by the prick'd Lines to the Horizon W, E, B, on both Sides of the Equator, are vertical Circles or Azimuths: The Points where they touch the Place of the Earth in the Equator, in any of thoſe Hours, if the Earth be ſuppos'd to Move; are to be underſtood as they are Number'd by Hours, in the Diagram. Of all which, one Example may ſerve, inſtead of more: Wherefore in the Spherical Triangle Z, Æ, 1 there is given Z, Æ, the Latitude of *London*, or Diſtance of the Zenith from the Equator, W, Æ, E, 51 *deg.* 30 *m.* Æ 1 the Hour on the Equator 15 *deg.* with the right Angle Æ, the Interſection of the Meridian and Equa-

tor, by which may be found Z 1 the Diſtance, in that Hour of the Azimuth of the Earth from the Equinoctial W, Æ, E, the dif-



ference betwixt it and Z Æ, the true and fix'd Latitude of *London*, ſhould the Earth Move, by reſolving of the ſpherical Triangle Z, Æ, 1, and comparing of the Side *Z* 1, when found, with *Z* Æ, will be 1 *deg.* 33 *min.* in one Hour's time: In two Hours, 5 *deg.* 53 *min:* In three

12 *deg.*

12 *deg.* 24 *min*: In four 20 *deg.* 22 *min.* If the ſeveral Triangles be Reſolv'd ſuitably to thoſe Hours: So that the Zenith and Elevation of Pole, as alſo the Meridian, muſt accordingly vary, together with the Points of the Compaſs and Situation of Countries throughout the World; if the Earth be ſuppos'd to Move: All which ſufficiently Refell, or totally Confute, the *Copernican Hypotheſis.*

And tho' by this Calculation, the Earth is Imagin'd to be in the Equator; 'tis not to be doubted, if the Earth were thought to deſcribe, by her Ecliptical Declination, any Parallel to the Equator, that there could be wanted ſuitable Proportions; if applyed by whomſoever underſtands the Doctrine of the Sphere. At preſent 'tis enough prov'd, by me, how much, in any time given, the Earth, by Moving, muſt transfer and alter the *Zenith* and Elevation of the Pole, as may be perceiv'd by the Diagram here delineated: And perfectly Demonſtrates the *Copernican* Abſurdity, or rather the Impoſſibility of Motion in the Earth; however comply'd with by the Opinion of *Des-Cartes:* So that the Earth may be confin'd to her Immoveable Station,

to

to the expunging of the Planetary Room given her, in any Scheme, by this Author, betwixt *Mars* and *Venus*; from whence, by his *Hypotheſis*, he removes the Sun, and places him below the Planets as their common Center. But the Proofs that I have Inſerted, are, I preſume, in all kinds, ſo perſpicuous, that I need not Catechiſe any Delineation or Diagram of his in order to a clearer Confutation: So that if the Earth does not Move, and ſurely no Proof of his has been weighty enough to Remove her, ſhe muſt be no Vagrant from her Place, whatſoever becomes of his *Hypotheſis*.

For which Reaſon, I hold it Impertinent farther to Imploy my Ruling-Pen, Compaſs, or ſpherical Calculation in Oppoſition to his Planetary Theory: Had he not added *to his Novel Syſtem the Superfetation of Comets, which he denominates Planets*, with no leſs aſſurance than if by a Convention of Stars it had been ſignify'd to him, That they ought to be Naturaliz'd into their Number; tho' formerly reputed ſpurious intruding Foreigners, and confin'd by the Learned Miniſtery of Science, to Exerciſe their Motions and Poſtures far below the neareſt Palace of Heaven; till advanc'd

vanc'd by *Des-Cartes* to Superior Orbs: Who aſſures us, *That 'tis expedient to allow, to their irregularity and rambling Above, as vaſt a Sphere as can be ſuppos'd betwixt* Saturn, *the ſublimeſt of Planets, and the fix'd Stars.* But by what means he exalts their Subſtance to that Height, ſhall be conſider'd, when I Treat of the Materials with which he undertakes to furniſh, and, in a manner, Compoſe the viſible World.

Which he tells us, in his 54th *Particular* is by ſuch an unerrable Idea committed to his Underſtanding, *That it were all one as to queſtion an Inſpiration diſpens'd by the Almighty, as to doubt of the Principles and Cauſes that he delivers:* Tho' he could not but know, that he was their firſt Communicator. But had he been ask'd, Why God ſhould ſo limit his Providence as not precedently to Illuminate other Men, with as much ſcientifical Certainty as he imputes to the Novel Diſcoveries made by his Pen? He might have been ſomewhat out of Countenance, or pos'd to Reply: Which in effect he confeſſes afterwards, where he acknowledges, *That it is not ſafe to be confidently conceited, or too far preſume on private Opinion; but rather as a Philoſopher, or by way of*

of Hypotheſis *to propoſe ſuch Notions, which if ſuppos'd untrue, they may be equivalent to Truth, if deduceable from them ſuch Things as may be experimentally uſeful.*

Here he ſeems to depoſe Fiction from the Throne of Reaſon, by depending on ſuch Certainties that are above whatſoever Fund, can be erected by Humane Imagination; and this he briefly ſignifies, by attributing Creation to the World with ſuch abſolute Perfection, that originally compleated the Sun, Moon and Stars: As alſo, that the Earth was primarily embelliſh'd with Vegetables of all Kinds, maturely perfect: And that the firſt of Mankind which he believes, was *Adam* and *Eve*, were Created in the exacteſt Bloom of Man and Woman: Of all which he grants himſelf Religiouſly, and Rationally aſſur'd. But notwithſtanding he adviſes us, *as our more ready Expedient, rather to conſider by what means Things might be produc'd, than in what Method they were originally Created by God.*

In my Opinion, he had better have acquieſc'd on the Miracle of the Creation, than to have prepar'd the expectation of his Reader, as he does in this Paragraph, by inviting him to attend on the Seminary of his Brain,

from

from whence he under takes to Expoſe the Principles, Beginnings, Ingredients, Vegetations, &c. *of whatſoever the Univerſe contains; as likewiſe out of what Materials the Humane Compoſition was firſt effected: Avowing, that his Principles are very Concedable.*

And ſo I grant, could any one Miracle be underſtood by undertaking to prove it by admitting of another: It being as Impoſſible to Explicate, by any material Proceſs, the Original Production of an Atom, as any Star of the Firſt Magnitude.

And ſuch I doubt may be found, not a few, of his Incomprehenſible Suppoſitions; as unaccountable, perhaps, to Man's Underſtanding, as if he had undertaken to Enumerate the Points that are contain'd in the unknown Circle of the Univerſal World. The main *Phænomena's* of his ſtupendious Philoſophy, Relate to the Primitive Exiſtence of Matter; which Matter, he abundantly divides into diverſities of Parts, and them again as variouſly diviſible: To theſe he appropriates different Motions; but ſuppoſes, that every Subſtance of which the viſible World is Compos'd, might, by Divine Appointment, be very near equal: Of which he Imagines, that

the Heavens and Stars were produc'd; and of the moſt fluid Materials; applying the more Groſs or Thick to inferior Things.

All which, in his Opinion might be no leſs orderly determin'd; than if they had Originally ſlipt out of *Chaos* with all their ſeveral Capacities and Motional Dexterities.

Thus far I have Extracted the quinteſcence of his *Hypotheſis*; or indeed but a reviv'd Model, as it may be well underſtood, of the Doctrine of *Epicurus*; there being little difference betwixt his Theory of Atoms and ſetting them on work, as he opens the Door of *Chaos*, than as diminutive Particles of Nature, they are buſily Modell'd by *Des-Cartes*.

And I think, that the Poetical Fancy of *Ovid* may be admitted to ſhare, in Principles, with both, where he expreſſes the firſt Start of the World's Individuals out of the confus'd Seeds of deform'd *Chaos* in theſe Verſes:

Unus erat toto Naturæ vultus in Orbe
Quem dixere Chaos; rudis indigeſtaque moles,
——————— congeſtaque eodem
Non bene Junctarum diſcordia ſemina rerum.

But ſhould the fanciful Monſieur *Des-Cartes* be queſtion'd for the *Chaos* of his Principles

ciples out of which he deduces the Conſtituted World; the Infancy of Nature would be as oddly underſtood from his Poſitions, as in the fantaſtical Doctrine of *Epicurus*, or in the Lines of Poetical *Ovid.*

Wherefore, as I conceive his Maxims to be too innumerably perplex'd and entangled for my Brain, or a better to explicate; I ſhall wave them accordingly by confining my Obſervations to a curſory Conſideration of ſome Particulars that I judge moſt uſeful, and therefore fit to be ſeparated from the reſt.

The Primitive Ingredients annex'd by this Author to the Original Conſiſtence and forming of the Viſible World, together with every Individual Subſtance, within its vaſt Circumference, are comprehended in three Elements no otherwiſe different than as they are more or leſs fluid.

The Firſt of which he conceives ſo forcibly acting, that in meeting with other Bodies it is divided into very diminutive and numberleſs Particulars: Accommodating its various Figures to the repleniſhing of all Angles that were caus'd by them.

The Second Element he ſuppoſes divided into very ſmall ſpherical Particles; but of certain,

and determinate Quantity; and diviſible into many leſs.

The Third he defines more Groſs, or Thick; conſiſting of Figures not very inclinable to Motion: Of the firſt of theſe he conceives the Sun and fix'd Stars Compos'd; the Heavens, or Firmaments above of the Second; the Earth, together with the Planets and Comets, made up of the Third.

Which Catalogue of Elements he thinks very ſignificant; becauſe, as he conceives, that only the Sun and fix'd Stars properly emit Light; the Heavens transmit it; and by the Earth, Planets, and Comets, remitted, which difference he judges may be diſcern'd; and therefore believes it well referr'd to Three Elements.

If Nature has accommodated us with Four Elements, of which we are as certainly Intelligent as that Heat, Cold, Moiſture, and Dryneſs, are incident to her genune Production of Things: This Author has exempted one out of her Catalogue; and what is more, has complicated a Trinity of Elements into one Subſtance, which he no otherwiſe diſtinguiſhes, than as in ſome Operations and Capacities, it is more Fluid than in other;

as

as he applies it to the primary Production of the Viſible World, and whatſoever had Being in it. So that the Firſt Star that twinkled in the Univerſe, was, *in his Judgment, but ſuch a refin'd Part of Fluid Matter, which if ſufficiently thicken'd might have groſly produc'd an Elephantick Conſtellation in the Firmament.* But of ſuch *Particulars* more hereafter, or when I Inſcribe my intended *Remarks on the Fourth Part of his Philoſophy*, where he Treats of the Earth and its Appurtenances.

In the mean time, I ſhall briefly Elevate my Obſervations to the height of his Suppoſitions as they tend to the Method deliver'd by *Des-Cartes*, whereby he would conceive in what manner the fix'd Stars and Sun might be Originally form'd and compleated.

In the beginning, *he means of the World, the Matter of the Firſt Element increas'd, by reaſon that the Particles of the Second Element, by their aſſiduous Motion did impair one another: From whence it enſu'd, that the Quantity of the Second Element was greater in the Univerſe than was neceſſary to fill up ſuch exiguous Spaces that were between the ſpherical* Particulars *of the Second Element, as they were mutually Incumbent: So that whatſoever did remain, after thoſe Spaces*

Spaces were ſo repleniſh'd, had a Recourſe to certain Centers: And there Compos'd the moſt Fluid ſpherical Bodies, the Sun on one Center, and fix'd Stars on others: But afterwards when the Particulars *of the Second Element were more attrited, or worn, and receding equally from their Centers, they left ſuch ſpherical Spaces as were, from all Circumjacent Places, by the flowing thither of the Firſt Element, exactly fill'd.*

His Words I have deliver'd in as clean *Engliſh* as I could fit, or contract them to his purpoſe; but that being done, I muſt confeſs that I cannot Conſter their meaning: It being very unconceivable, how he could furniſh his Brain with a ſpeculative Idea of ſuch Particles of Nature ſeparately and fluidly Moving; ſince whatſoever is Fluid muſt neceſſarily Imply a continu'd material Emanation of the ſame Subſtance; as in pureſt Water it is impoſſible to imagine any ſeparate Fluidity in any of its Particles; no more than the moſt diminutive Bubbles, when diſcern'd on a flowing Spring, or River, can be ſaid to be ſeparately Fluid. And next to Affirm, as he does, That ſuch Materials could movingly Atteriate or Rub one another leſs; there being no ſuch Capacity in any Fluid Subſtance: Wherefore

Wherefore if he had us'd the Epithet of waſhing, or daſhing, of greater into ſmaller *Particulars*, tho' ſomewhat Improper; the Expreſſion had been more pardonable than his calling them Rubbers of one another into any Fluid Diminution. And what is more, he undertakes by their reciprocal Motions to fill up every Corner amongſt them: But how to find an Angle in any continual Fluid Matter, cannot be underſtood by Geometrical Delineation; wherefore I wonder to find in ſo knowing a Mathematician, as was this Author, ſo undemonſtrable a Syſtem.

But howſoever Interpreted, he undertakes abundantly to Repleniſh, with ſuch petit material Quantities, no leſs than three of the Superior and vaſteſt Heavens: And next by his *Invented Vortices*, which in a Grammatical Senſe, may be denominated Whirl-pools, he Circumvolves Cluſters of them, until he has diſpos'd them capacious enough to be Metamorphos'd, by Motion, into the Figures of the Stars and Sun.

Againſt the main of his Opinion that the Heavens are fluidly Compos'd, on which the reſt of his *Phænomena's* depend, there is farther to be objected, That it is unnatural, and clearly

clearly Inconſiſtent with undeniable Philoſophical Principles; and as contradictory to ocular Evidence: By which we are aſſur'd, as perfectly, as by Sight we can diſcern, that the Sun and Stars muſt be of the ſame Celeſtial Subſtance with the total Heavens; and which *is not denyed by* Des-Cartes *otherwiſe than as he ſuppoſes ſome Parts of it, which he calls the firſt or moſt fluid Element*; and therefore ought not to be ſo defin'd by him: Becauſe whaſoever is Fluid is alſo diſſipable, and conſequently may be more Extended, Dilated, or Contracted; but neither of theſe are to be obſerv'd in the Figure or Appearance of the Sun, that always continues exactly Spherical; tho' at ſome times, the clearneſs of his Figure is not equally perceivable by reaſon of Exhalations and Vapors that interpoſe, betwixt his Splendors and the Eye of the Beholder. Moreover if any Part of the Celeſtial Subſtance were fluidly diſſipable; Nature would be neceſſitated, to prevent Vacuity, the deteſted Oppoſite to her Exiſtence; that ſome inferior Matter, or Body, ſhould Aſcend to ſupply that place in the Heavens where the Parts were ſeparately remov'd: Which were repugnant to Providence, that has ordain'd,

That

that no other than the Subſtance of Heaven, by any Natural Motion, ſhall poſſeſs the Supreme Part of the Univerſal World: If it could, the Elementary and Corporeal Mixture of Bodies below, might be corruptly intermingled with the refin'd Nature of the Heavens, which are apparently unalterable, undiminiſh'd, and as totally uncorrupted: In which Senſe it may be concluded, That the Heavens are Immutable, and therefore Impatible; as being of ſupremeſt Excellency, or not at all partaking with the diſtemper'd Compoſitions, or Ingredients that conſtitute other Bodies.

If the Heavens are determin'd to be of the moſt tenuous Subtilty and Perfection, as neceſſarily they muſt be, becauſe far ſupremer than all other Beings of the Viſible World, and therefore a Propriety inſeparably conferr'd on the Superiority of their Exiſtence; inſomuch as they never can Deſcend; which is abſolutely contrary to all other Quantitative Magnitudes that Move downwards, or, like the heavy Compoſure of tne Earth, naturally tend or reſide in the loweſt Place: Yet in a wonderful manner the Subſtance of the Heavens may be deem'd no leſs Tenuous than

excellently Solid, by reaſon that the entireneſs of their ſimplicity admits not other Subſtance to be Coherent or Moving with them: For which Reaſons, had this Author defin'd, in the ſame manner, the Subſtance of the Heavens, it had been far more concedable, than to have determin'd them, in any kind, Fluid; as being an Epithet not at all Concentring with the Notion we ought to have of the ſublimity of their Motions, and refin'dneſs of their Appearance. To Summ, in a Word, my Objection, nothing can be Term'd Fluid, but muſt have a moiſt Propriety, and Moiſture, in whatſoever Subſtance, is nearly Ally'd to Water, and therefore of ſome weight: Whereas it is poſſible to allow Admirable, or Incomprehenſible Tenuity, not at all ponderous; which claims a Dignity perferrable to any Opinion that can be alledg'd to the contrary.

The other Miſtake of this Author is, That he is poſitive in Affirming *That the Motions of the Particles, or* Globuli, *as he names them, of the Celeſtial Subſtance, have a natural propenſity, to depart from their Centers*: Notwithſtanding, *he grants them, however diminitive, to be ſpherically Figur'd; by which Inclination or*

Endeavour

Endeavours of theirs to be excentrically Remov'd; he Affirms, *That the Light of the Stars and Sun is both attain'd and conſiſtent with them.*

Which Maxim of his, in effect, were all one, *as if he had determin'd circular Motion to be prepoſterouſly and forcibly Conferr'd; as he would ſuppoſe the prone inclination of Things to relinquiſh Central and Circular Movement:* A Tenent highly unnatural, and contrary to the Method of Providence, that doubtleſs does, in a manner, Celebrate the moſt ſublime and excellent Subſtance of the Heavens with the moſt perfect Motions. How Stars then ſhould attain their wonderful Light, or exactneſs of their Figure, by an irregular Motion; were to debaſe the Omnipotent Cauſe of their Illuminated Exiſtence: As I have remark'd, on his Notions of the Laws of Motion, in the former Second Part of this Treatiſe.

As alſo, by what I prov'd a little before, in this Part, by undoubted Principles of Philoſophy in oppoſition to his Idea, or Suppoſition, of the exorbitant Motion of ſuch Fluid Globulous Particles of Matter, that by their Flux and Reflux, he would imagine the Light of the Sun continually preſerv'd and

repleniſh'd: Is the reaſon, as I precedently inſtanc'd, why I think them impertinent, and conſequently avoid the giving of my ſelf the trouble of delineating divers of his perplex'd Diagrams; as being ſufficiently, I believe, confuted, together with his Methods of Motion, and the Funds on which he erects them: All which, to the beſt Eye of my Underſtanding, ſeem no leſs obſcure, or uncomputable, than if a Man ſhould undertake to Demonſtrate the ſeveral Movements, Obliquities, Situations and Figures of innumerable multitudes of the moſt diminutive Sands, when ſcatter'd, by Winds, throughout the largeſt *African* Deſart.

On which account, I may well omit ſuch Theories, Syſtems and Schemes of his, that I take to be inſufficient, or ſuch as, in his own Words, he declares rather probable than Certain: Wherefore the paſſing from whole Pages of them, to what may be more Intelligible, or ſenſibly communicated; cannot be unacceptable to my Reader, if I that way exempt the Labour and Toil of his Eyes, from Inſpecting of ſuch Things, as might, in no kind, ſatisfie his expectation, or deſerve the pains of the Inſcriber.

And

And thus I paſs to his 115th *Particular*, where he undertakes to tell us, *how a fix'd Star may be converted into a Comet.*

The Cauſe he renders, of ſuch a blazing Prodigy, being no other, *Than that it is a Globulous, Opacous, and hard Subſtance congeriouſly Compos'd of abundance of Spots rapidly mov'd by ſome whirling Vicinity, or* Vortex, of his Denomination; *which mov'd irregular, and if ſo deſcending, paſſes to inferior* Vortices, *where making a ſtop he determines it a Comet.*

But if it afterwards deſcends to a certain diſtance from any Star, to which the Center of that Vortex *does belong, it then remains there, and Revolving about it, is an abſolute Planet:* This, in brief, is the ſubſtance of this Head, as he delivers it.

What conſiderate Man is there, that by reading of thoſe Words, would not Interpret them of a complicated, dark, or heavy Senſe; if compar'd to the admirable Celerity, of their Import, by creating of a Comet, or on his Conditions, a Planet? Unleſs by favouring the Pen of the Learned *Des-Cartes*, ſome gentle Reader might deem it the moſt ſublime Stuff that ever was written by any Author. And ſuch, I doubt, are the Ingredients by which he Compoſes,

Compoſes, in any of his Conſiderations, the Subſtance of a Comet.

But if there are in the Heavens no ſuch Materials, of which he undertakes to Metamorphoſe fix'd Stars into Comets, or into Planets, and conſtitute *Vortices* and *Globuli*, together with the Motions he annexes to them; all that he has written on that Subject, may ſignifie no more than Vapours of his Brain; and Comets no other than ſpuriouſly produc'd by ſublunary Exhalations ſublimely elevated, as not a few of the Learned have Written; and perhaps, as ſurely ſo Compos'd, as that the Body of *Des-Cartes* conſiſted of Elementary Parts; into what Vapourous, or Crude Imaginations muſt then vaniſh his *Hypotheſis* of Comets!

That there is no ſuch Subſtance in the Heavens, as he diſtinguiſhes them by his Trine of Elements, before mention'd, is very manifeſt, both as he defines them Fluid, and from the Motion he annexes to them: Which if granted to Move as ſupplemental or diminiſhing of any Material Thing, they muſt partake of Elementary Nature and Mixture: Becauſe whatſoever is dilated, or contracted, muſt likewiſe vary Extenſion; and nothing but what is Elementary can be ſo underſtood,

or

or be properly the Object of Senſe: On which ground, the moſt Judicious Philoſophers have defin'd the Heavens, with all their orbicular Vicinities, of a diſtinct Eſſence from the reſt of the World, which cannot be Affirm'd of the *Vortices* or *Globuli* devis'd by this Author, of which he declares ſome more fluidly, thin, opacous, groſs, or thicker than others: And where lives the Man, that pretends to the leaſt Philoſophical Senſe, that would admit any of theſe Definitions or Qualifications, otherwiſe than as Elementary Proprieties incident to the alteration and corruptible Tempers of Things in that manner Conſtituted?

But ſo much has already been Written to this purpoſe, of the Nature of the Sun and Stars, to which I can add nothing here, unleſs I reiterate my former Diſcuſſions; tho' I am as little a Friend to Repetitions, as I am to tedious Pen-men: A Reflection that might be pinn'd on ſome Treatiſes of this Author, without being pronely Satyrical: Who ſeems to vary his Fluid *Phænomena's*, *Vortices* and *Globuli*, in ſeveral Diagrams; but if duely conſider'd, are to no better purpoſe, than where the Fund of any one of them proves unſound, the o-

thers

thers are disprov'd: And I have dealt with some of his Tractates accordingly, by waving divers of his *Particulars*, where I thought they might be, in a small compass, significantly Answer'd.

The Substance of what he delivers of the various Appearances and prodigious Motions of Comets is briefly thus; *granting that by the most accurate Observation that can be made of them, no exact Rule is to be given of their Transmigrations from one part of Heaven to another, as in a few Months or Days they frequently vanish from our Sight; and sometimes not much more, or at other times, Move less than amounts to a middle part of Heaven; as also, that when they are first seen they usually seem of greatest Extension: But towards their Period, gradually diminish, and as in the beginning of their Appearance, their Motion is swiftest; about the end, they are observ'd to Move slowest.*

All which admirable Diversities and *Phænomena's*, he considers as caus'd by such *Vortices* and *Globuli*, as I have already mention'd, and for the Reasons given by me, shall totally be declin'd, together with the Imaginary Proofs that he would deduce from them.

ut

But in their ſtead, as far more explicitely ſatisfactory, I ſhall preſent my Reader with the moſt conſiderable Opinions of Learned Philoſophers, in reference to the Cauſe, Effects, Being and Motion of Comets.

That they are Prodigies of an extraordinary Nature, is unanimouſly determin'd by the Famous in Science.

Seneca, of all the Latin Writers moſt ſpiritually Ingenious, writes to this purpoſe, in the 7th Book *of his Natural Queſtions.* —— *As of many Things*, ſaies he, *that we grant in Being, we are Ignorant, and in particular of the Mind, or Soul within us, by which our Perſons and Actions are guided: As alſo, of what, or how produc'd that Mind or Soul:* How then can we undertake certainly to know other myſterious Exiſtencies, ſo far remov'd from us, when the Mind within us, as to its own Being, is a Myſtery to it ſelf?

And therefore not to be admir'd, if Comets, the moſt rare and ſurprizing Objects, are ſo viſible to us, that by no certain Rules, their Intervals, Beginnings and Periods, are underſtood by us.

And well may the Humane Mind, as *Seneca* infers, if deficient by not apprehending the

manner of its Existence, as imperfectly consider Things above us; and especially such as are highly distant from our Eyes, and use of our Senses. Wherefore *Aristotle*, in his Treatise, *de Cælo*, acutely determines, That Celestial Objects, as they are, of all others, most Remote from sensible Perception, so no less distant from any evident Demonstration, or Science, that can be Affirm'd from their Observation. That Comets are produc'd from Elementary Exhalations, as their Principal Cause, is the general Opinion of many of the Learned Ancients and not a few of like Repute amongst Modern Authors: Because in Figure they diversly vary as their Substance Increases, or Diminishes, according to the time of their Appearance, untill their Matter, as it were consum'd, they totally vanish: Which they frequently do, when in their highest Elevations; and therefore never observ'd to Rise or Set as does a Star or Planet, and consequently not of their Substance, no more than a Star can be defin'd mixt or elementarily Existing. Whereas, to the contrary, 'tis ocularly evident, that the Matter of Comets is gradually Extinguish'd; which proceeds from no other Cause than that Comets are naturally

turally alterable, and decay as to their extent, bigneſs, fading of their Colour, and ſhining Appearance; in ſuch a manner as can be Attributed to no other Cauſe than the variety of their Elementary Compoſitions; which nothing can have but what may tend to a corruptible Period: More properly aſcrib'd to the extraordinary *Phænomena's* of Meteors, then converted, from the Subſtance of Stars, into Comets, or chang'd from thence to an abſolute Planet; *ſuitable to the wonderful Suppoſition of* Des-Cartes.

The exalting of Comets to Celeſtial Rooms and Etherial Movements, may be imputed to the miſtaken Supputations of their Heights and Diſtance from us; either as they have not been or cannot be exactly obſerv'd: In reſpect that the Progreſſions of Comets are ſo inſtantly and perplexedly various; as precipitately, in ſome Moments of Time, they are motionally downwards; and, in other, as immediately Aſcendant: From which uncomputable difficulties the endeavour'd Calculations of Famous Aſtronomers, as to the exactneſs they intended, have been doubtleſs fruſtrated.

Which may well be admitted, if judiciouſly weigh'd, how hard 'tis to give a true Account

of Things far above us: Inſomuch that it is almoſt as facile to Compute their remoteneſs by the Eye, as to render it Arithmetically or Inſtrumentally Certain. Should a *Jacob's* Staff be made ten times longer than *Salisbury* Steeple, it might prove too ſhort by any Proportions, it could give, were it apply'd to the ſurveying of the Diſtance of a Comet from the ground we tread on; tho' no other than a Meteor in the ſupremeſt Region of the Air: Becauſe we do not certainly know, how far the Loweſt, Middle, or Sublimeſt Part of the Areial Region is diſtant from us.

Suppoſe a high Cloud did Diametrically Intervene betwixt the Sun and us, and let a Man be imagin'd, as near as poſſible, by the moſt approv'd Inſtrument to take its central Altitude above the Horizon: And the very next Moment that the Cloud removes, let him alſo, in the ſame manner obſerve the Horizontal Height of the Sun; 'tis not to be doubted, that he might find, by comparing, little difference betwixt their Altitudes.

And if this be probable, we may be aſſur'd of the uncertainty of Aſtronomical Obſervations that would higher Aſcend.

The

The uncertainty of the Place of Comets, and their Diſtance from us is alſo more or leſs by reaſon of the different Inequalities of the Superficies of the Earth, which is a main Cauſe of the Erroneous Computation both of their Quantity and Diſtance; by reaſon that the Eye ought to be in the Center when Obſervation of Comets is any ways perform'd: As alſo, that the Eye is hinder'd, or obſtructed by Reaſon of ſuch groſs and fuliginous Matter as is naturally incident with Comets: Since all Viſion by optick Principles, muſt neceſſarily be diſpos'd and form'd according to the Diſpoſition of the *Medium* by which it is receiv'd and convey'd to Sight: And thus the irregular and various Diſporportions that appear in the Figure, Quantity and Diſtance of Comets, are diverſly beheld, or in a manner by Refraction, not unlike the viewing of a piece of Money in Water, it ſeems to be greater than it is, and at the top, when it is really at the bottom: According to which Similitude the parallactical Angle, or the difference betwixt the true and apparent Place of a Star, tho' the beſt Geometrical Method in order to its Calculation, is very uncertainly found by accurate Aſtronomers, when apply'd

to

to Comets; and notoriously evident if compar'd their Observations; which are so exceedingly Discrepant, that even to Infinite Degrees and Miles their Computations differ as they Relate to the Magnitude and Distance of Comets from the Earth. All which may be egregiously apprehended if conferr'd the Observations of Famous *Tycho* with other Learned Astronomers that were before, and after him, of Eminent Reputation.

To which may be added the ocular Experience of Ages past, whereby 'tis assur'd, that Comets together with their blazings, are Dissipated and Extinguish'd, when they nearly approach to the Ecliptick or Equator: Which is contrary to the Motion of the Planetary Luminaries that regularly Move in respect of those Circles, about the Sun; from whose Beams they receive the brightness of their Splendors: So that Comets either in Place, Nature, or Motion, can be no other than elevated Meteors and therefore of no Similitude with, or Derivation from Celestial Substance; or at all Compos'd by such unexplicable Methods *as are Instanc'd by the Scheme, Diagrams and Notions of* Des-Cartes.

Lastly,

Laſtly, the Matter of Comets may be indiſputably Affirm'd, elementarily Mixt, and obnoxiouſly Diſtemper'd and Compos'd, from the malevolent Effects that, too frequently are conſequent to their Appearance: As Plagues, Famine, Deſtruction of Cattle by killing Diſeaſes, ſcarcity of Grain, and the like: And ſometimes ſuperlatively omnious as they preſage the Death of ſome Prince: Whoſe Period as *Ptolemy* is quoted by *Albertus Magnus*, is moſt eſpecially ſignified, when a Morning Comet is in the Sign that did Aſcend at his Nativity. In Summ, that Comets are terribly Prodigious, and extraordinary Prognoſticks diſpens'd from Above; or as ſevere Emblems of the diſpleaſures and puniſhments of Heaven inflicted on the Iniquities of Kings and Subjects; are no leſs true than ſignally Recorded by credible Hiſtorians. Of which wonderful Examples, together with their portentous Attributes, I find nothing ſaid, in this Treatiſe, by this Author; tho' otherwiſe, perhaps, too far inquiſitive of the Production and Nature of Things, however Remote from common Underſtanding.

And

And here I would Close my *Remarks on the Third Part of his Philosophy*; were not I oblig'd to Note, or indeed Reprehend his Conclusion; in which he infers, in Confirmation of his former Doctrine, *That the Planets, although inclin'd to Circular Motion, never perfect any such Movements, either in Longitude, or Latitude.*

To which I Reply, by a necessitated Reiteration, being not desirous, that his Conclusion should have the better of my Pen, by which I have judg'd, or rather prov'd, his Premises taxable: Wherefore I thus briefly repeat my former Assertion, which was, That the Attributing in his Method, of imperfect Motions to the Planets, by contriving their Movements in Figures not exactly Circular, was an erroneous lessening of the Perfection of Providence; which could not but ordain, to the most Refin'd Existencies of Stars and Planets, such Movements as might be comprehended by the most absolute of Figures, which must be the Circle: Because there cannot be otherwise so useful a Computation of their Motion, as, is Demonstrated by many celebrated Astronomical Observators; by whom the new Mode of confining the Planetary Motions

ons to an Oval, or Ellipſis, was never thought on, or wanted by them. Nor can I apprehend, how the Account of our Days and Years could be ſo commodiouſly render'd, as by Circular Motion they are computed. Which might be ſome Reaſon, why judicious *Euclid* did not mention, in any Part *of his Elements*, the Ellipſis, or any ſort of Curv's, frequently found in the Schemes and Diagrams of *Des-Cartes*; as either certainly to be Enumerated, or Geometrically explicable: Whereas in his Third and Fourth Book he demonſtrates Circular Commenſurations, and alſo ſuch Lines as uſefully relate, or may be apply'd to them.

'Tis ſaid of *Plato*, who being ask'd, what God did? Anſwer'd, that he exercis'd Geometry; as by Man might be conſider'd the Proportions of his Conduct, and Motion of his Works: But had *Des-Cartes* been ſo Interrogated; he muſt have Reply'd, according to his *Hypotheſis*, That the irregular Figures, Schemes and Delineaments, that abundantly repleniſh his Diagrams, ought to be receiv'd as the Geometry of Heaven: However inconſiſtent with the ſoundeſt Notions, that Men can have, of the Conduct, Order and Motions above us.

Other Objections might have been Inſerted, as due Reflections on the Idea's, Principles, deviſ'd Theories, and Problems of this Author; which, to deal freely with my Reader, have more reference to the boundleſs Sphere of Fiction, than to any common Place of Science, or methodical Probation. Wherefore I have been thirſtily cautious, and I preſume not Indiſcreet, by ſeparating ſuch Things from other of his Imaginations, on which I could more commodiouſly ground my *Remarks*, and thereby facilitate their Uſe to publick Underſtanding: An Inſtance not improperly Annex'd to the Cloſe I give to the Third Part *of the Philoſophy of* Des-Cartes.

REMARKS

REMARKS

On the Fourth Part of the

New PHILOSOPHY

OF

DES-CARTES.

Of the Principles of the EARTH.

PART. IV.

WITH no ſmall Labour and Diligence, according to the beſt of my Underſtanding, I have thoroughly Inſpected, and carefully Contracted my *Remarks*, to ſuch *Particulars* as I judg'd of moſt familiar Conſideration, to whomſoever ſhould peruſe what I have Written. And as in my precedent Tractaets I omitted ſuch Maxims, Arguments, Premiſſes, Concluſions, Schemes and Dia-

grams, of this Authos, which I conceiv'd rather obſcure Repetitions, or poſingly Compos'd, than obviouſly perſpicuous to the Apprehenſion of the Reader; an Overſight that ought to be highly avoided by a judicious Writer. The ſame rational Method, or ſeparating of divers complicated Tenents, Aſſertions, and pretended Proofs of this, otherwiſe, Learned *Frenchman*, from what I have more Compendiouſly, and I preſume, uſefully Inſerted; I ſhall continue in this Fourth Part of my Obſervations on his Philoſophical Principles.

The Works of his Compoſing, that I have to do with, being ſo frequently intermix'd with divers Modalities by him Propos'd and Invented, that neither concenter with Old, or New Probabilities; that ſhould the ableſt Penman undertake to Paraphraſe, or Comment on them, 'twere much the ſame as the attempting to explicate one Soleciſm by alledging another.

'Tis ſaid of *Lucretius*, That he was the firſt of Philoſophical Poets; and it may be as pertinently Affirm'd, of this Author, that he is the firſt of Fictitious Philoſophers: The main Bulk of whoſe Treatiſes, for the moſt part, are

are rather thicken'd by his affected Imaginations, than rational Conjectures deducible from Rules of Science; which in divers Places of his Writings, however indulgent to his Deviſings, he is ſo ingenuous as to acknowledge; but with this confident manner of excuſe, *That he ſuppoſes his Inventions ought to be more allowable than whatſoever can be urg'd againſt them*; which I have, as I believe, and ſhall endeavour farther to diſprove. And thus I proceed to conſider his *Hypotheſis* of the Being and Production of the Earth.

In the firſt Page and entrance, he makes into his Fourth Part of his Philoſophical Treatiſe, *he transfers the Principles which he had apply'd to the Conſtituting of Superior Beings, in his Third Part, to the original Forming and Exiſtence of the Earth we Inhabit:* Which, in his Firſt Paragraph, *according to his deſign'd Imagination*, in Subſtance is thus: *Let us feign* (ſaies he) *That the Earth was primarily Conſtituted ſolely of the Matter of the firſt Element*, (which has been mention'd by me, in the Third Part of his Philoſophy) *as was the Sun, tho' much leſs; as likewiſe to have a vaſt* Vortex, *or whirling Subſtance, about her; the Center of which* Vortex *was the Center of the Earth:*

But

But as ſome Particulars, *or* Globuli, as he calls them, *were channell'd, or hollow'd, and ſome, but not all, very diminutive, of that Firſt Element, they adher'd, and ſo were converted into the Matter of the Third Element*; (which I likewiſe noted in the foreg-oing Tractate,) *and from thence, firſt of all, were the opacous Spots engender'd on the Superficies of the Earth, reſembling thoſe we behold continually to generate and diſſolve about the Sun.* And next tells, *how ſuch* Particulars *were Thinn'd, or Condens'd, Aſcending, and Deſcending, ſome to Etherial Parts; ſome to the Higher, others to the Lower Region of the Air: As alſo, how the thicker of their opacous Spots cover'd, and darken'd the whole Surface of the Earth.*

Thus I have briefly ſumm'd his Senſe; the doing of which, has caus'd ſuch a wonderful Confuſion in the utmoſt extent of my Intellect, that I cannot there find room for the whirling of his *Vortices* and *Globuli*: Or were the Brain of Man as big as the Earth, it might prove too ſmall for the comprehenſive Underſtanding of his *Hypotheſis*: *By which he diſplays his Scene of Chaos, together with the diffuſion from its Womb of ſuch Particles, or Seeds of Nature, That by their Motions and continu'd*

continu'd Involutions, and Revolutions, Thin, or Thicken, without the operative concurrence of Heat, Cold, or any other Elementary Quality; untill a ſufficient quantity of them meet in a Lump, that might produce the Figure and Magnitude of the Earth.

But from what ſhadow of Reaſon, or Philoſophical Authority could *Des-Cartes* fancy, That either the Univerſe, or Earth, part of the whole, might be Conſtituted, or any ways generated by Motion unleſs of Bodies Compos'd of ſuch Elements that are common to our Apprehenſions? Becauſe nothing if not ſo temper'd, is capable of Motion, or computable by Time, the natural Propriety of Motion; and therefore not of ſuch Chimerical Maaterials, or unqualified Particles of Nature, *as he numbers in the actings of his devis'd Triplicity of Elements:* Which if granted, 'twere, in effect, to Aſſert, That Motion, Time, and the Elements we uſually underſtand, and by which we ſubſiſt, were operative and original Cauſes of the World's Exiſtence: So that the Earth, together with Mankind, and whatſoever it contains, might have had, in the Opinion of this Author, a capacity of ſubſiſting, or wonderfully forming it ſelf, without a miraculous Creation. Nor

Nor can his Suppoſition be excus'd, by alledging, *That the Almighty might Ordain the Fabrick and Structure of the Earth, by any Motion of Subſtances that were not Elementary*: Becauſe impoſſible to conceive any other temperature of Things, that could be motionally capacitated to produce other Beings. But of what Compoſition, or how eſtabliſh'd, the Heavens above; are Thoughts too remote and ſpiritual, as I have prov'd, by Learned Authority, in the precedent Treatiſe, to be definitively reach'd by the Humane Intellect: Notwithſtanding which ſublime Conſideration, *the Earth is plac'd by* Des-Cartes *above; and inſtead of the Sun, as a Planet, according to the* Copernican *Syſtem, in as lofty a Room as is the Orbite betwixt* Mars *and* Venus.

In anſwer to which, enough I believe has been objected in the former Third Part: But now, having ſuppos'd the Matter of the Earth before intermingled with that of the Heavens; he tells us, *how the Materials of the Earth delaps'd, or ſlipt from above, towards the Inferior Place, according to his* Phænomena, *of the Sun; and next diſtinguiſhes the Earth into three Regions.*

The

The Firſt of theſe *which he calls the moſt Inward, he ſuppoſes to contain ſo much of the Matter of the Firſt Elements, not otherwiſe there Moving, or of other Nature, than as it was in the Sun; except that its Subſtance was leſs pure: But thinks that the Earth in paſſing from the Sun*; and ſurely, *in his Senſe upwards*, becauſe by his *Hypotheſis* he has preferr'd the miniſterial Situation of the Terrene compoſition, much Superior to *Phœbus* the King of Illuminating Beings, as alſo that it continually became ſpotted, and could not be purg'd or clear'd of them: From whence ſaies he, *I am eaſily perſuaded, That the Earth was then full of the Third Element, did not it follow, that ſhe could not, if at that time ſo ſolid, be ſo near the Sun,* (he means downwards) *as now ſhe is.* To which purpoſe, he has devis'd a Right-worſhipful Scheme; but left by me, to the Inſpection of ſuch as have no other Imployment for their Eyes.

The Second Element of the Earth, *he determines opacous and thickly Subſtantiated, as conſiſting of divers Minute Particles that appertain'd to the firſt Element:* And this, *in his judgment, Experience aſſures by the Spots in the Face of the Sun, which excepting their reſin'dneſs and*

ſubtility, are the ſame with thoſe of the Earth: Yet notwithſtanding hinder the Light that would elſe more appear in the Sun.

But concludes, after ſome offer'd Reaſons, which I do not mention, becauſe I think 'em Irrational, *That theſe two Elements have little to do with us; becauſe no living Man ever aſcended to their Stations.*

But by what Authority does he preſent us with a Theory of Things that he confeſſes no Body could ever be aſſur'd of: And for that Reaſon, I might paſs from them with no leſs neglect than the Man, who reading an Inſcription at *Athens* that was Dedicated to the unknown God, thought it had little to do with his Contemplation: And no more my concern what this Author delivers here; theſe Elements having been ſufficiently, I doubt not, Remark'd by me, in the Third fore-going Part of his Philoſophy.

Notwithſtanding I will briefly add ſomething, avoiding, if poſſible, Reiteration of Words, on the ſame Subject already written: Or only by way of Interrogation, were *Des-Cartes* preſent, deſire to be inform'd in what Mint of Nature, he Coin'd theſe Elements, and as her Bank-ſtock Pay's them off, in Parcels,

cels, to his Reader? In doing of which, he introduces, and a while continues, the original Empire of Nature, in Power and Credit, numerouſly attended by very inconſiderable Subjects, *which he calls* petty Globuli, *ſurrounding her Throne, and immediately committed to the Government, and diſpoſal of revolving* Vortices *that whirl'd them, without any orderly Method, or Proportion, either East, Weſt, South, or North; or ſometimes only upward, to the height of Heaven, and as ſoon precipitately downward; by which medly of Motion he conceives abundance of their Fluid Subſtances exceedingly thinn'd; whilſt others were as nimbly thicken'd.* As if the Hands of Nature had been buſily imploy'd in kneading of their Cluſters till thoroughly condens'd.

Yet grants them ſo inſipidly temper'd, that by no proper Term, Naturally, or Philoſophically Intelligible, he determines them either light or heavy; *as he diſtinguiſhes their Elements from whatſoever is Elementarily Compos'd:* And thus, according to his Method, he imagines, *That Nature made her firſt Entrance out of the Cloſet of Chaos*; and having not thoroughly waſh'd her Face, *he ſuppoſes ſome of her Spots might afterwards viſibly remain*

in the Figure and Subſtance of both Sun, Moon and Earth.

If next he had been ask'd, on what account *he attributes Spots to the Luminary of Day, or Night, together with the Terrene Sphere of our Being*; that are within no compaſs of reaſonable Apprehenſion, he muſt have return'd a motly Anſwer. Since undeniable, That whatſoever is capable of Spots, as its propriety, muſt be naturally colour'd, and therefore of a mixt, Elementary Compoſition; by reaſon that nothing can be obſervably ſpotted, but is alſo colour'd by mixt Ingredients, and conſequently the Object of Sight.

But the Sun and Moon, were never held, by ſound Opinion, Elementarily Conſtituted; wherefore not of any of his ſuppos'd Elements, no more than 'tis poſſible to conceive, how Air could be alterative, or operate on Air, or Water on Water; without partaking of Elementary Mixtures: A Truth confirm'd by Experience in every Thing that is Thinn'd, Thicken'd, Aſcends, or Deſcends; as ſure as Earth is more ponderous than any of the other Three Elements ordain'd by Providence to exert all ſuch Operations of Nature, as are with cleareſt Evidence underſtood by us.

From

From whence may be concluded, that the ſeeming Spots in the Sun, or Moon, are no other than meteorous Exhalations or Vapours that interpoſe betwixt the Luminaries and the Eye of the Beholder; as ſurely as we frequently diſcern more or leſs clear, in Appearance, the Sun and Moon, and therefore no Spots Inherent in their Subſtance.

As for *the Spots that he annexes to the outward Complexion of the Earth*, what Man ever heard of any of their Colours, except of ſuch Things as have Being and Growth on her Surface; as Trees, Plants, Men, Women, Beaſts, Grain, and ſuch other Things, as might from Cauſes, be produc'd? How to Reply, had he been thus Interrogated, I dare Anſwer for him, he could not have told.

And thus I come to the farther Examination of his *Third Element, by which he undertakes to Exſpand the Original of all Things within the Compaſs of the Earth.*

To which purpoſe, I will briefly Summ the Order and Materials, by which he forms *his* Phænomena's *of the Earth's Production.*

All which he ſuppoſes, *were produc'd of the Fragments of a certain Thinn and Fluid Compoſition*, which he Entitles, *The primary Element*

of

of Nature: Theſe Imaginary or Globuli-*Fragments, proceeding,* (as he derives them) *from Spots in the Firſt Element, and deſcenſively operating on the next, term'd by him a Second Element, they confus'dly, and exceedingly diſorder'd in Motion and Figure, tended downward, from their firſt ſublime Height, till at laſt they became more congerioufly Thick, ſuitable to the groſsneſs of the Earth's Compoſure, and Settlement; where it now remains.*

So very intricately obſcure, or vainly perplex'd, does this conceited *Monſieur* debaſe the original Wiſdome and Conduct of Nature, both as to her own Eſtabliſhment, and the Production of her Works; which could never be ſo diſproportionably and irregularly effected by the prudent Diligence and Intendment of her Operations: Which, as this Author commits them to her peculiar Conduct, I do not ſee why they ſhould not have been, by her Management, as highly refin'd and continu'd, *as he delivers the Materials of her firſt pureſt Celeſtial Element:* And conſequently of them, ſo ſublimately ordain'd, have produc'd the Subſtance of Man and Woman, that being exalted to a Superior Room in the Etherial Heaven, the Eyes of Beauty might

might have there ſhin'd inſtead of Stars, now beheld, of the firſt Magnitude: And next to theſe, why ſhould ſhe not have gradually Illuminated the Subſtance of Animals, with all other Materials and Plants, that being naturally cleans'd from ſuch Terreſtrial Ingredients, Alterations and Mixtures, that are now in them, they might have remain'd ſplendent Parts above, inſtead of being Revolv'd and whirl'd in *globuli's*, or diſpers'd Fragments of Nature, downwards, untill they clos'd in a Lump that compleated the Earth, in Figure, diſpoſition of Parts, and Situation, ſuitable *to the Opinion of this Author*?

Such Queries may not be unfitly urg'd againſt his total *Hypotheſis*, with all its Appurtenances; to which I add theſe palpable Objections.

Firſt, that it is egregiouſly prepoſterous, if not an Impeachment or leſſening of the Dignity of Nature, ſuppoſing that by her voluntary Actings ſhe debas'd the ſuperiority of her Exiſtence, by crumbling of her Materials into innumerable Bits, or Particles, in all kinds, of impurer Subſtance, and next diſpoſe them, by a rambling, or giddy Progreſſion, ſo groſsly to meet as they might conſtitutively finiſh

and.

and ſuſtain the ſmall inferior Bulk of the Univerſe call'd Earth; or rather denominated the ſpurious Daughter of Nature, if ſo engender'd by her actual conſent.

Whereas contrarily, 'tis the inſeparable Attribute of Nature, intentionally to Conſerve, whatſoever depends on her *Regalia's*, in its proper and utmoſt Perfection. And although, that by ſuch Elementary Compoſitions and Mixtures, as are underſtood by us, ſhe is neceſſitated to vary her Conduct, as Things are, in courſe, Generated, or Corrupted, in order to produce ſuch Exiſtencies that could not be continu'd in themſelves; and therefore Providentially convertible into other Beings: Yet ſhe conſtantly preſerves her moſt genuine Progreſſion, which is, that nothing ſhall ſo alter as not to have Matter and Form incident to their Corporeal Proprieties: Not unlike a Sovereign Ruler, within whoſe Dominions there is no period of his numerous Subjects by Death, becauſe enough are begotten that ſucceed them.

But no ſuch Procreation could be conſiſtent, or produc'd, as an *Elementary Triplicity* is devis'd by *Des-Cartes*; and not at allaccompliſh'd or ſeaſon'd with ſuch natural Ingredients as

are

are the Elementary Adjunct to Bodily Exiſtences: But rather of ſuch a ſimplicity and incommunicable Qualification, that 'tis as reaſonable to imagine, That Earth ſhould proceed from meer Air, or Water from Fier, as that his imperfect, and uncompounded Elements, ſhould, by their *Vortices*, and *Globuli*, arrive to any Corporeal Production: Becauſe the Principles of all Things could be no other than Contarrieties, and therefore Elementary: Inſomuch, that had not Providence otherwiſe diſpos'd natural Operations than are contriv'd by this Author; neither the Heavens above, however excellent and refin'd their Eſſence, or the Earth we poſſeſs, with all its Appurtenances, could have been effected.

The next Objection, is briefly thus, — Suppoſe, it were conceded, That his *Hypotheſis*, relating to the Conſtituting of the Earth's Exiſtence, were allowable; could it be conceiv'd, that the diverſities of Being and Motion *which he annexes to his Particles of Nature*, ſhould be either operative or motional before the Sun, Stars, World, or any Elementary Compoſition, a main Cauſe of Motion, Verſion and Alteration of Bodies, as naturally they ought to be underſtood, did

really Exiſt? Becauſe nothing can Move upwards or downwards, but what is Corporeally mixt; and therefore conſiſting of Commenſurable Parts, whoſe Movements muſt be gradually computed by Time, Nature's unerrable Accountant: But by the Incomprehenſible *Phænomena's of* this Author, *the World was fill'd with temporary Motions, before it or Time was, or could be ſumm'd by computable Progreſſion of any Thing, that could be its porportionable Meaſure*; according to his Suppoſitions: Which Impoſſibility is ſo diſregarded *by this Writer*, that Time, were his Notions true, might have continu'd, ſome thouſands of Ages, before it could be underſtood to have Being, or his ſmall *Globuli*, Circumvolv'd by their *Vortices*, could have conſtituted and fill'd the local Situation of one Mile of Earth, with all its Materials, from top to bottom, with their diminutive *Particulars*.

Which Abſurdities, if well conſider'd, might have deterr'd, as Learned a Perſon as *Des-Cartes*, from poſing his Intellect, with ſo many unexplicable Imaginations, whereby he would aſſimulate, however far above Thought, the ſtupendious Conſiſtence of the World to miraculous Syſtems invented by his Brain.

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As for the Elements that he undertakes to deliver *as the firſt Principles whereby the Earth was Conſtituted*, which, as I have already prov'd, are neither Philoſophical, or Natural; he tells us in his 13th *Particular*, *That the more Solid, or thicker of them, are not always Inferior, in Place or Motion, to thoſe that are thinner*; the Reaſon he gives is, *That notwihſtanding they are uniformly Revolv'd, they ſo adhere to one another, by the Irregularities of their Figures, that the* Globuli *of one Element cannot extricate themſelves from the Compulſions upwards, or downwards, of another.*

This Gentleman, who had no otherwiſe differenc'd his principal Materials, by which he would Conſtitute the Structure of the Earth, *than as the Parcels of his ſmall* Globuli, *were more or leſs extended*, begins now, in effect, to grant them Elementarily mix'd, as every Thing muſt be that is Thinner or Thicker than another, or different in Weight and Meaſure: *But ſo as by his turbulent* Vortices, *the lighter were mingled with the heavier, in ſuch a complicated manner, that they could neither Aſcend or Deſcend, as they ought to have done by their Qualifications.* But gives no certain reaſon, why they might not always have continu'd

ſo Intermingled, and Confus'd; and therefore never have ſeparated from one another? *Since he determines no Ceſſation of the impetuous Movement of them caus'd by his whirling* Vortices: How then could the Earth be Compos'd, or Conſtituted, by ſuch Irregular Particles of Nature, that neither by their Motion, or different Temperatures, could be diſincumber'd from one another, and conſequently ſo exactly Embodied as might compleat the total Subſtance of the Earth?

In his 14th and 15th *Particulars*, *he undertakes to Deſcribe* what he means by diverſities of Bodies, which he ſuppoſes form'd in that, which he denominates his *Third Region of the Earth*; and theſe, he believes might be produc'd as the Globe of the Earth, diſtinguiſh'd into three Regions, having been devolv'd towards the Sun, and the *Vortex*, in which it was before, taken from it, variety of Bodies were diſtinguiſh'd in it: Whoſe Productions he deſigns to explain afterwards; but firſt, *he delivers three or four Axioms, on which they depend.*

The Firſt is the general Motion of his Celeſtial Globuli.
The Second is their Gravity.
The Third Light.
The Fourth Colour.

His Firſt Poſition I am oblig'd to reflect on, and more ſeverely, could it be avoided, than I am willing to do; out of the reſpect that I have to this Learned Author. But having Geometrically prov'd, by what I have Written on the Third Part of his Philoſophy, That there can be no Motion, either Diurnal, or Annual, to be Attributed to the Earth, the *Copernican* way, inſtead of the Sun: I cannot but add, That it is far more egregiouſly Suppoſititious, that the imperfect Agitation of his *Globuli*, which he Inſerts, in the Page I write of, ſhould perform their Annual or Diurnal Motion about the Sun, correſpondent to his Imaginary Syſtem: It being highly improbable, that ſuch different Particles, which he defines *Globuli*, both in Subſtance, Bigneſs, Quantity and Meaſure; as alſo, irregularly Moving, by his Conceſſion, ſhould compleatly finiſh the Diurnal or yearly Motion of the Sun;

Sun; becauſe not to be thought, that they could Revolve ſuitable to any Figure Geometrically computable: And therefore impoſſible, even to Abſurdity, the fictitious Circumvolution that he *appropriates to his Region of* Globuli, than if without them, *he directly had Aſſerted the Motion of the Earth:* Becauſe the Earth, allow'd by the Learned, to be Circularly Form'd, is more capable of Revolution, than that ſuch diminutive Subſtances, as are diſagreeably Compos'd, both in Quantity and Figure; ſhould ſo perfectly unite their Movements as exactly to Repreſent, or Conſpire with the Earth's Motion, in the room of the Sun, either Hourly, Dayly, or Yearly, appertaining to Ecliptical Circulation.

In order to which performance of his deviſ'd *Globuli*, he makes yet more groſs their Incomprehenſible *Phænomena*'s; by Affirming, *That they incline to Move in a ſtreight Line, tho' he grants them not figuratively ſuch*; as if Things could be propenſe to Move directly, if naturally oblique in Proportion and Figure: Notwithſtanding that 'tis impoſſible, that whatſoever Moves, ſhould deſcribe any other Superficies, or Figure, than is ſuitable to its Corporeal Parts. Nor can any Thing be ſaid

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in a proper Senſe, to incline to Move in a ſtreight Line, but as it muſt be either upwards, or downwards; according to the Nature of its Gravity, or Levity.

To be plain, the moſt favourable *Salvo* that can be apply'd to this Broken Head of his *Hypotheſis*, is, that he judges it ſafer, for his manner of *Copernicaniſm*, to ſubſtitute his whirl'd *Globuli* as Aſſiſtants, by their Movements, to the Motion he allows the Earth: Becauſe, as I conceive, he might apprehend, that Objections to be made againſt the Earth's Revolution; as alſo, that by ſuch an *Hypotheſis*, the Situation of Countries and the Elevation of the Pole muſt infallibly alter, as has been already demonſtrated, might be rebated, or not ſo unanſwerably Alledg'd. Tho' to Men of competent Apprehenſion, the Abſurdities are the ſame, whether the Earth alone, or his *Globuli* and the Earth, in any Kind, Intrigue, or conjoyn their Circulations.

Can a Man that has ſeaſon'd his Intellect with the leaſt Reliſh of Mathematical Principles, conceive it poſſible for the confus'd *Phænomena's* of *Vortices* and *Globuli*, mention'd by *Des-Cartes*, to abſolve the mean or equal Motion, which, Aſtronomy aſſures, is annually

annually conſummated in the Ecliptick? Or, that the ponderous Structure of the Earth, ſhould be ſo regularly elevated from her Center, as that any Point of its Superficies, or its *Vortices*, and *Globuli*, in the Senſe of this Author, might at one time have an *Apogæon* height, or utmoſt Diſtance from the Center of her Orb, and at another a *Perigæon*-nearneſs unto it: Which were much the ſame, as to think it feaſible for cluſters of Flies, no bigger than Gnats, when they numerouſly ſeem to Circulate in Sun-ſhine, to remove the weighty firmneſs of the terrene World; or perform, inſtead of the Sun, the Ecliptical Revolution of the Day, or Year.

Yet on this prepoſterous and feeble Conduct, is erected the *main* Hypotheſis *of this* French *Writer, both as to the Compoſition, Being and Motion of the Earth, with all her Circumjacent Particulars:* Which ſhews, that he takes to himſelf an unpreſidented Dictatorſhip in Science, whereby he would celebrate the Fictions of his Brain, without any requiſite or probable aſſurance, that they ought to be Conceded.

To which purpoſe, he Inſerts *the various Actings of his ſeveral Elements, tho' by no Body,*

Body, but himſelf, ſo nam'd ; and by theſe, *ſo Invented by him, together with* Vortices *and* Globuli *form'd from them*, he judges, That the Earth, with whatſoever it Comprehends, might be totally Conſtituted ; as he their prime Artificer has contriv'dly ſet them at work.

The firſt Action tending to the compleating of the moſt refin'd Subſtance, or Parts of the Earth, he conſiders, *as produc'd by the Motion of the moſt tenuous Matter of what he Terms a Third Element* ; *which he ſuppoſes ſo very pure, that, even to Tranſparency, it may cauſe Bodies, tho' appertaining to Earthly Compoſition, very clearly to Shine.*

And thus we have the Earth, according to the Doctrine of *Des-Cartes*, both a motional and illuminating Planet. But ſhould I account the numerous diverſities of the fictitious Motions, aud ſhifted Inventions by which this Author confers a ſhining Capacity on ſome Particulars of the Earth's Subſtance, I might more than tire, if not abuſe, the Patience of an indefatigable Reader. Neither could I do other than impertinently load my Pen with repeated Objections, and manifeſt Confutations of his Theories of Motion, as

they have been diverſly apply'd by him on this, or other Subjects: The Movements of Things, *in his Method, as he annexes their Qualities and Motions,* being neither exactly agreeable, to ſtreight Lines, or their proper Tendencies, or to ſuch Curv's, as might be of Mathematical Conſtruction; and therefore inconſiſtent with the Geometry of Nature: Which, as to her Works, muſt proceed from a regular Proceſs; to which purpoſe, enough has been already written by me.

I will therefore, in this place, briefly Inſpect the Fond of the ſhining Attributes that he confers on ſome Particulars of the Earth, as they are ſtated by him.

The principal Reaſon that he offers, is, *That 'tis experimentally found, that pure Liquor in the Earth, of tenuous Conſiſtence, is alſo pellucidous, or ſhining.*

Which cannot be true, if by clearneſs he means an Illuminating Quality: No more than the pureſt Water that can be Imagin'd, may be ſaid to Shine, becauſe it is clear. And who ever beheld any ſhining Part of the Earth otherwiſe than by diffus'd Beams of the Sun' Moon, or Stars, it might be enlightned; tho' without any Illumination as to its own Capacity?

Where

Where are the Eyes that in a gloomy Day or Night, ever obſerv'd the ſhining of a Mole-Hill on the Surface of the Earth: Or ſuch little Morſels of the Ground as Worms deject; which might be compos'd of ſuch Materials, *as he deſcribes his diminutive* Globuli *to conſiſt of*, for any reaſon given, by him, to the contrary?

To confirm theſe Objections, this one, that includes many, may pertinently be added.

If, as he imagines, the diaphanous Parts of any of his Celeſtial Elements, as they are defin'd by him, ſhould by any intelligible Movement ſo operate, as they might be ſo qualitatively Conſtituted, as to embue any particular Subſtance, or Places of the Earth with a ſhining Capacity; ſince he has undertook to Metamorphoſe our terrene Habitation into a Planetary Compoſition: How can it be probably apprehended, that his Fluid *Globuli*, by their feeble Commotions, ſhould be conjoyn'd to the Surface of the Earth, notwithſtanding that the condenſe, or cruſty Parts of her Surface are thickly harden'd and nouriſh'd by the Roots of Graſs, Trees, Minerals, Stones of all kinds, diverſly temper'd, and not poſſibly penetrable by any compulſive Motion of his

diminutive, and impotent *Globuli*; unleſs ſo much of the gaping Superficies of the Earth could be ſuppos'd to receive their Fluid Deſcents, to no other purpoſe, than ſhe does Rain when diſtill'd by the Diſſolution of Clouds? Which being done, there could but a dewy gloſs appear on the Ground, that might not more imbrighten any Part of the Earth's Figure, than when, in ſome moiſt Seaſons, the Glow-worm, with her Light, is engender'd.

So that whoſoever would perſuade himſelf, that the terrene World, or any Part of it, was ever primarily compleated or motionally diſpos'd by *the* Globuli *and* Vortices *comprehended in the Diagrams and Theories of* Des-Cartes, may as readily believe, that the Globe of the Moon was originally produc'd by the efficacious Seeds of a Carret-Bed.

Nor does he deny, in ſome reſpects, the incongruity of his Principles, as in his 18th *Particulars*, he confeſſes, *The Materials, by which he moulds the Frame of the Earth's Compoſure, and firſt Exiſtence, to be confuſedly operative; by granting, that the liquid Parts, which he Attributes to the prime Formation of the Earth, were diſorderly complicated with his Celeſtial Globuli. Yet might by their Operations,* in his judgment,

judgment, *upwards, downwards, or tranſverſly, be ſeparately diſtinguiſh'd by the Similitude he Porduces of a Glaſs of Wine in the* Muſt, *having Dregs not only on the top, and bottom, correſpondent to Gravity and Levity, but alſo on the ſides of the Glaſs: When afterwards the Wine being clear, notwithſtanding that it before conſiſted of various Particulars, it becomes pellucidous, or ſhining; and not more groſs or thicker in any one Part than in another.*

Here he preſents his Reader with a Philoſophical Weather Glaſs; by which he would determine the temper of the Seaſon, when the Earth was forming by his diverſified *Globuli*, and whirling aſſiſtance of his *Vortices:* Which petty Operators, as he ſtates the Metaphor of their Condition and Conduct, might be as drunk (as Flies may be ſuppos'd) when ſome of them are, as it were, giddy on the top of a Glaſs of ſtrong Liquor, or lean to its Sides, for ſupportance, whilſt others more ebrietouſly repleniſh'd, heavily ſink to the bottom: All which may be aſſimulated, without any wrong to the Brain of this Author, *unto the giddineſs of his* Phænomena's: It being impoſſible to conceive, from what rational Courſe of Nature he could produce the Subſtances,

together

together with the Movements of his debauch'd *Globuli*, by which he conſtitutes the Being of the Earth: Conſidering, that he deduces their original Deſcent from what he Terms his firſt pure Element.

In his 19th Head, he poſitively aſſures us, *That the Third, and main effect of his Celeſtial* Globuli *are ſo perfectly operative, that they convert liquorous Drops reſiding in Air into rotund Figures*, the reaſon as he States it is, *becauſe thoſe Celeſtial* Globuli *find more Paſſages into a watry Drop than into the Circumjacent Air: And by that means, as near as may be, Move in right Lines, or in ſuch as moſt approximate unto direct lineaments; whence it is manifeſt*, in his Opinion, *That ſuch* Globuli, *that are in the Air, are leſs motionally hinder'd, as they meet with a watry Drop, according to the continuance of their Motions in a ſtreight Line, or neareſt unto it, if that Drop of Liquor be exactly ſpherical, than if it had taken any other Figure. But if any Part of the Superficies of that Drop, be extended beyond a ſpherical Figure, the Celeſtial* Globuli *by their more forcible diſcurſions, made in the Air, more ſtrenuouſly aſſault the watry Drop, than were it other Subſtance, and immediately thruſt it downwards towards the Center.*

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The Reader, I preſume, will excuſe me, if in this Place, and ſome others of his Writings, I deliver the Notions, of this Author, in more uncouth Accents than I would willingly commit to his Peruſal: It having been my care, no leſs than neceſſary Diligence, to render as genuinely, as might be, his *Latin* Expreſſions into *Engliſh*.

If my Remarks on his precedent *Praticular* had any ſharp Alluſion, dreſs'd in a plain and familiar Application; I cannot rebate, on this occaſion, the point of their tendencies: Wherefore, if prov'd by me, in the foregoing Head, tho', by a comical Similitude, that his *Hypotheſis* had inebriated his *Globuli*: I may as judiciouſly Aſſert, That his Senſe, in the *Particular*, I now Treat of, may be, by no extravagant Similitude, term'd unnatural, or Philoſophically, and Mathematically Intoxicated; unleſs I could Affirm, in his behalf, that his *Globuli*, which, as he ſuppoſes, might by the force of their whirling *Vortices*, ſo diſpoſe their Materials to the Conſtituting of the Earth, that the very Grapes that caus'd drunkenneſs in the Head of the Patriarch *Noah*, were engender'd by ſome of their giddy Compoſitions.

And

And as ſure, as the Earth is now in Being, Nature might be deem'd out of her Wits, if according to his diſorderly Proceſs, ſhe could be thought to Deſign the Production of the earthly World.

Or what can be more improbable, *than the Tale he tells, of his Celeſtial* Globuli *converting of liquorous Drops, hanging in the Air, into round Figures?*

And what Reaſon does he give; why, no better than as he ſuppoſes, *That his* Globuli *may find more paſſage in watery Drops than in the circumjacent Air?*

But does not common Experience confute this Imagination? Let a ſtrenuous Hand fling a ſmooth Peeble-Stone into the Air, and afterwards into Water, will it as ſoon paſs any Part of the Superficies of Water as of the Air? Or will it not, the Water being of a more condenſe Subſtance than Air, have, proportionably, a longer Motion and Paſſage, by the reſſiſtance of its thicker Body, than might be given by the Tenuity of the Air? A Truth ſo practically evident, that it could not be unknown to many of the young Contemporaries at School with *Des-Cartes*; wherefore I wonder to find him of a contrary Opinion here.

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As little concentring, in any kind, with ſound Principles, *are the Proprieties that he annexes to his* Globuli; *which, if, in their Motion, engaging with any Part of a watry Drop that is extended beyond a ſpherical Figure, they immediately, with greater force, aſſail it, and by compulſion enforce it towards its Center.*

But if any Part of it be nearer its Center than another, his Celeſtial Globuli, *contain'd in that watry Drop, forthwith imploy their utmoſt Force to expell it from its Center; and next altogether concur to make one ſpherical Drop.*

Here by a perverſe Contradiction he notoriouſly thwarts the ſureſt Maxims of Philoſophy, as they pertinently Relate to the Nature and Motion of Corporeal Beings. Nor is there any Thing more irrational, if not Philoſophically abſurd, than to define, as he does, globulous Materials, and debar them of Motion natural to their Figures: It being not poſſible to imagine, that whatſoever is rotund ſhould be more propenſe to Move in a ſtreight Line, or the neareſt unto it, than in a circular Revolution. If a Ball be let fall from the Hand, will it it not rotundly Move ſuitable to its Figure? And could this Author imagine, That a Demonſtration ſo experimen-

tally obvious would be wav'd by any Principle of his Geometrically Inconſiſtent; or that the exactneſs of Things circularly Mov'd, of all others moſt perfect, ſhould incline to deviate from their Centers? Or if that were granted, is it at all probable, that they could have freer migrations, according to this Author, through any one of his ſuppos'd watry Drops, than in the tenuous Subſtance of the Ambient Air? Which being done, they are, in his Senſe, ſometimes compulſively enforc'd towards their Centers, if their Figures be not abſolutely ſpherical; but if exactly round, as forcibly remov'd from their Centers. And thus he Implicates, if not ſo, croſly Involves Contradictions, that he determines the operations of Nature, more conſonant to the exerting of a Step-dame's Arbitrary Conduct, than ſuitable to the comely Effects, by which ſhe regularly produces the Motion and Being of Things.

All which muſt be conceded as Principles of Nature, incident to her Rule and regular Intention; as ſurely as ſome of her Materials are more ſubſtantially heavy, or lighter than others; and will therefore have a natural Recourſe, upwards or downwards, to their Centers accordingly. Where-

Wherefore it may be admir'd in what Fit, or Heat of Fancy, the Brain of this *Monsieur* was Inveigled when by so many perplex'd Words, as also opposite Terms and Methods, he did, in a manner, angrily Impose the Limitations of his Measures, on the stupendious Productions of the Works of Nature: Insomuch, that his Maxims, if soberly consider'd, signifie, little other, than a design'd Rape committed on the Grandeur of her Figure and Beauty, together with the providential Facility, by which she compleats and preserves her Legitimate Conduct and Operations. So that his Invented *Elements, with all his Diagrams of* Vortices *and* Globuli, seem fictitiously devis'd, or appertaining to the Imaginary System of some other World; since not at all probable, that they could belong to the Composure of this.

But enough has been in this Place, and occasionally before, I believe, satisfactorily Inserted, on this Subject, that it were impertinently tedious if more be added.

There remains one *Particular*, that ere I conclude on this Head, requisitely deserves a considerable Remark; because it Includes a very curious and subtil Mathematical Problem:

Which he thus expreſſes ; *the Angle of Contact by which the Tangent Line touches a Circle, and by which only it is diſtant from a right Line, is leſs than any Rectilineal Angle whatſoever, and in no Curve Line, beſides the Circle, is every where equal:* Wherefore he Affirms, *That a ſtreight Line cannot more equally, and leſs every where inflect, or bend, from its Points, than when it degenerates into a Circular.*

I have read in the Hiſtory of *Algebra*, written by Dr. *Wallis*, who mentions the controverted Queſtion, concerning the Angle of Contact made by a ſtreight Line where it touches the Circle ; but in his Opinion, thinks it nothing, if not a right Angle, in being perpendicular to the peripherial Point of the Circle ; becauſe not otherwiſe, numerically Computable: He alſo Inſerts his Diſceptation, as I remember, by Letters that paſs'd betwixt him and a certain Learned Perſon, who undertook to defend, againſt him, the Determination of the famous Mathematician *Clavius*, in whoſe Judgment, the Angle of Contact was properly ſomething, tho' not Commenſurable ; and therefore not otherwiſe definable, than as being leſs than any acute Angle whatſoever ; which I take to be the more probable

probable Opinion: By reaſon that it could not be denominated Angular without it appertain'd to ſomething, tho' but of general or tacit Application. And thus, in the Judgment of *Euclid*, the Angle of Contact has a ſingular Attribute, where it touches the periphery of the Circle, but not otherwiſe accountable or to be ſumm'd by Number: The Reaſon is, that in every Circle, whether equal, or unequal, the Point in the Circumference touch'd by a right Line will be the ſame in all of them; becauſe no other Line can fall between the Point of Contact, in any of their Peripheries: And could it be Commenſurable, it would be of one Equality: Whereas, contrarily, in every direct Figure, or where two right Lines touch one another, the Angle they make may be Geometrically leſſen'd by any intervening Line, or Lines, that meet in the Angular Point: But not ſo to be underſtood of the Angle of Contact, which has no proportion in its ſelf, if compar'd with any other figurative Angle.

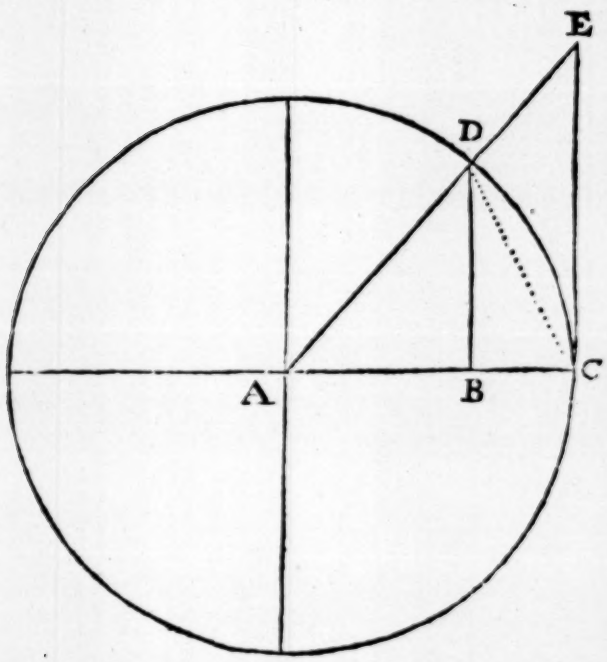
To which purpoſe, the Learned *Proclus* ſignally Determines, That the Point in the Circle, where the Angle of Contact meets with a ſtreight Line, is mixtly Compos'd of a direct Line,

Line, and the Curviture of the Circle; and therefore not Commenſurable by any diſtinct Line, that can be numerically computed. So that the Angle of Contact may be well Term'd ſingular, by reaſon it has no proportional Similitude, or Quantitative Propriety, correſpondent to any other Angular Delineament. And the more Admirable, becauſe the wonderful Extent, and Power of Geometry, computatively Explains by the vaſtneſs of its Science, all other Angles, Mathematically qualified, except that which is lineally annex'd to the touch of the Circle. And what is yet more wonderful, the tangent Line that Includes, and makes the Angle of Contact, is perfectly Commenſurable, tho' not the Angle where it touches the Circle; a Geometrical Secret that has not a little perplex'd, if not pos'd the Pens of famous Mathematicians.

Wherefore I think it not improper in this Place, to preſent the Reader, ſo far as it Relates to the Proof I offer, with this familiar Diagram. That E C the tangent Line, where it touches the Semidiameter A C, is a right Angle, is ocularly Demonſtrative; becauſe

it

it is Perpendicular to the Diameter; notwithſtanding that it makes no certain provable



Angle, where it touches the Circle; by reaſon that the Curviture of the Circle is betwixt it and the Semidiameter; and that it is a proportional Line, is prov'd by the 4th *Proportion of the Sixth Book of* Euclid: For as A B, is to D B, ſo is A C, to E C; which is alſo the Tangent of the Angle E A C: Whence it is manifeſt, that E C the Line of Contact is Commenſurable, but not the Angle made by its touching of the Circle.

Or

Or this Propoſition may be thus demonſtrated; the Angle at D, made by the prickt Line D C, in the Triangle A, D, C, is a right Angle, as is always the Angle in the Semicircle; therefore the Angle; A, C, D, is leſs than a right Angle, tho' it may be allow'd greater than any acute Angle, and the Angle at C made by the tangent Line, leſs than any acute Angle that can be given: Otherwiſe, the Point where the tangent Line touches the Circle, could not be, in that Point, ſingular; as before demonſtrated. So that in the Triangle A, C, D, if D be a right Angle, the Angle at C muſt be leſs than a right Angle; becauſe in every plain Triangle, the three Angles are but equal unto two Right. Which confirms the former Demonſtration.

And from which may be concluded, that of what demonſtrative Quantity, the Angle of Contact does actually conſiſt, is, as yet conceal'd from Geometrical Inquiſition: Or not to be diſcover'd, untill a certain Proportion can be found betwixt a ſtreight and a curve Line; which perhaps may never be Demonſtrated: If not as impoſſible, as to prove, a Curve commenſurately diſtinguiſh'd from a Curve.

I confeſs, I am not a little beholding to this Learned *Monſieur*, for the occaſion he has given

given me to diſcuſs, I conceive not unſatisfactorily to the Judicious, the Queſtion concerning the Angle of Contact ſo much controverted by Celebrated Geometricians: And which, by a certain fineneſs in Science, is more pertinently apply'd to the purpoſe, he would intend it, than any Mathematical Propoſition, Theorem, or Diagram of his that I have met with.

But I cannot thank him *for the Concluſion he deduces from thence; or becauſe he takes it for granted, That a ſtreight Line by reaſon of the near approximation that it has to the Circle, in the Point of Contact, never leſs inflects from every of its Points, than when it degenerates into a circular Figure.*

By which Inference he does highly diſparage the Contexture and Theory which he deviſes *for the Motions of his* Vortices *and* Globuli, *in order to their material compleating of the Univerſal World:* If their Motions, in any kind, tending to a direct Line, be allow'd to degenerate; when from that manner of Movement they convert to circular Revolution. Which were all one as to charge the motional Exactneſs and Conduct of Nature, providentially diſpos'd, with Miſtake, or Imperfection,

relating to her Operation and Works: Becauſe no figurative Motion can be imagin'd ſo abſolutely compleat, excellent, and of certain continuance, as is circular Movement: By reaſon that no Part of a Circle can be Term'd its Beginning or End. Whereas contrarily, no Motion can be made in a ſtreight Line, but muſt have ſeparate, intervall'd and terminated Parts: Which enough diſproves the Allegation of this Author; as ſure as that by Geometrical Dignity and Proof, the Circle has a ſuperlative perfection above all other Figures. And were it not to be ſo acknowledg'd, there is little reaſon, why the Wiſdom of Providence ſhould annex the admirable Computation of Days and Years to circular Revolution. But ſo much has been ſaid, by way of Confutation, in my former Remarks, on this Subject, that I need not renew them here.

Nor is it requiſite, that I ſhould farther reflect on his elaborate Expreſſions, Draughts, Schemes and Delineations, by which he undertakes to confirm the Motion of Things, in order to the Conſtructure of the Univerſe, together with the Being of the Earth; ſince, I doubt not, I have refell'd his total *Hypotheſis*

on

on which his Principles are grounded. Wherefore I ſhall paſs from all of them, to the Entertaining of my Reader with ſome eſpecial Thoughts, relating to the Original of the World, and Earth, we inhabit, as are Ancient or Modern, of moſt erudite Reputation.

I. *Concerning the Magnitude of the Univerſal World, the Queſtions are; Whether it be Infinite, or Finite, materially repleniſh'd or not?*

II. *As to its Duration, or Continuance; Whether it had any temporary Beginning, or eternally Conſtituted?*

III. *As to Number; Whether it be one, or numerouſly Exiſting? Tho' as to Number, there can be no Controverſie, if the World be granted Infinite; becauſe there can be but one Infinite.*

IV. *Another grand* Querie *is, From what Cauſe, or Matter, was the World Originally Compos'd?*

V. *And next, From whence, or in what manner that Cauſe and Matter did proceed? Of theſe, Diſputes have been rais'd, till ceas'd by Conceding of One, or more Eternity of Cauſes.*

All which *Particulars* have been exquiſitely Treated of, by great Philoſophers; if the labour of their Search, could have been as ſatis-

factorily repaid, by discerning of what they so earnestly sought: But they soon found that Infinite Science is inconsistent with Finite Understanding: It being impossible, that in the most exquisite Imagination of Mankind, there should be an Idea, or Phantasm, of any Thing of Infinite Denomination, or Being, either as to Magnitude or Time: Because neither Magnitude, or Time can be Infinitely Computed: Insomuch, that nothing, but what is Infinite, can have an Infinite Conception.

So that should a Man, of the most subtil and refin'd Reason, undertake to argue from one Effect of an immediate Cause, and next to a Remoter; and by that manner of Reasoning continually Ascend; he would find, That his Imagination could have no eternal Progression, but would fail, as if tir'd, by its stupendious Journey; or how to proceed farther, not at all impower'd to direct it self.

Nor is it consequently absurd, in the Judgment of Learned Philosophers, if the Structure of the Universe be thought either Finite, or Infinite; by reason that both, or either of those ways, of its Constituting, are alike possible to the Conduct and Operation of the Almighty,

Almighty; as the World now is, or might ſo have been, formerly beheld, with whatſoever it contains.

If nothing can properly be ſaid to Move, but as it is Mov'd by ſome Cauſe of Motion, which muſt be granted Supreme and Eternal: A main *Querie* depends on that Conceſſion; which is, Whether Matter, the ſubject of Motion, muſt not be alſo allow'd Eternal; in which Senſe, the World might be held perpetually and motionally Exiſting: Contrary to the Opinion of Some; who determine, That the Omnipotent Cauſe, or Deity, was eternally Immoveable, or not at all Operative, untill the World's total Creation was miraculouſly compleated: But the Objection, againſt that Opinion, will be more difficultly Anſwer'd; if urg'd, That whatſoever may be thought eternally Immoveable, cannot be probably conceded the primary Cauſe of Motion; which Imply's a temporary, or Finite Beginning, as applicable to any Date of the World's Creation: A Conſequence, in the Judgment of ſome, that Confirms the perpetuity of the World's material Conſiſtence; as alſo, That, by Omnipotent Power it was always in Motion till gradually perfected as it

now

now Exiſts: It being, not at all, Inconſiſtent with Divine Power, if ſo ordain'd, That Matter ſhould be unaccountably motional, in order to the ſtated Diſpoſure, and exact Conſummation of whatſoever has Being, within the vaſt Circumference of Heaven and Earth: Yet no ſuch Thing as Infinite Matter, in any conſideration, rationally to be ſuppos'd the Original, out of which proceeded the World's Exiſtence, with all its *Particulars*: By reaſon that it were a Geometrical Contradiction, ſhould Matter be defin'd Infinitely ſubſiſting: Since abſolutely certain, that whatſoever may be Term'd Matter, Subſtance, or Body, muſt alſo be quantitively Commenſurable: Wherefore, in this Caſe, the World might be, before Time was, materially Conſiſtent; if duely diſtinguiſh'd betwixt Infinite, and eternal Duration; which by Omnipotent Will and Power might be effected, by determining a perpetual continuance of Matter, tho' not Infinitely Exiſting.

The great Philoſopher *Ariſtotle* not a little concenter'd with the ſame Opinion, as he thought it more probable to appropriate Eternity to the material Being of the World; in oppoſition to the Sentiments of ſome Philoſophers

ſophers, who thought it was generated, according to the Opinion of *Plato*, by a certain Mutation from what it had been, to what it afterwards was, or now is.

But although, in the Judgment of *Ariſtotle*, the ſubſtantial Exiſtence of the World was deem'd Everlaſting; he could not believe, that its Matter was actually Infinite; becauſe whatſoever is material muſt be quantitive, and therefore Mathematically computable, as before Inſtanc'd: So that if *Ariſtotle* be reconcil'd to *Ariſtotle*, he may be underſtood, to deny the Being of the World from any precedent Alteration, or Change that could proceed from its natural Compoſure, or any generative Faculty, that could be ſuppos'd in it, at all produc'd: But in this Belief, he does not abſolutely oppoſe its total Creation.

If he firmly conceiv'd, That it was never effected by any generative Method; he does not, by that Tenent peremptorily diſſent from the poſſibility of its Exiſtence, by a miraculous Creation: To which purpoſe, *in his Second Book of the World*, he Affirms, *That the World, is the Ordainment of God*: And *in his Twelfth Book of Metaphyſicks*, he poſitively Aſſerts, *That*

That the World, and whatſoever it contains, depends on God as its Original Cauſe. Which duely apprehended, is more contiguous to Divine Allowance, *than the Univerſal Principels of Catholick* Des-Cartes; *who having fill'd the World with one pure Element, and by that determination left no Space or Room, whereby there may be imagin'd any natural Operation, by which the different Qualifications and Proprieties that he confers on his* Vortices *and* Globuli, *could be poſſibly deduc'd.*

Inſomuch, that it may be Affirm'd, *That his petty* Phænomena's, *together with his* Hypotheſis *of the World's Production,* are more Irrationally fabulous, than the little imperfect Notions of Atoms, expos'd in the Writings of *Epicurus*; who teaches, That the World, before it had Beginning, did conſiſt of moſt diminutive Places, that were not repleniſh'd with Bodies; his Reaſon is, *That had ſuch Places been fill'd with any Corporeal Beings, there could not have been Room for the Motion of his Atoms; becauſe one Body might oppoſe, in the Space it poſſeſs'd, the Movement of another; and ſo fruſtrate in every kind, the progreſſion of his Atoms, in order to the Conſtituting of Heaven and Earth:* The Modalities of which Particles

cles of Nature, by *Epicurus* denominated Atoms, together with their motional Attributes, may methodically be read in the Writings of the Philoſophical Poet *Lucretius*, to which I refer the Reader.

And next to proceed with *Monſieur Des-Cartes*, I find that he has not only elaborately Intrigu'd, if not unſucceſsfully perplex'd his Brain, as I have precedently prov'd, by forming of ſuch Materialities, and their Movements, whereby he would Embody the Fond, Situation and Exiſtence of the Terrene World; but alſo, as he Imploys his farther Speculations on the Elements of Air and Water, as being of neareſt vicinity to the Earth we Inhabit.

The Air, *by his Definition, is of a tenuous and fluid Subſtance, congeriouſly compos'd of his Third Element*, already mention'd; *and therefore declares it thin, and pellucidous.* That the Air conſiſts of a Fluid tenuity is undeniable; but not to be allow'd gliſt'ring or ſhining of it ſelf; which is very evident, as we ocularly diſcern the capacious Complex of the ambient Air, more, or leſs, Enlightned; and conſequently Warmer, or Colder its Temperature and Effects as it proportionably re-

ceives, and is qualified, by Illuminations from Above.

And therefore not true, as inferr'd by this Author, that becauſe the Air is of a liquid and tenuous Conſiſtence, that it is therefore naturally, and not accidentally Lucid: If otherwiſe, why might not this opiniative *Monſieur* as well Attribute Inherent tranſparency, or ſhining, unto Water; that is ſo nearly ally'd to Air, in being of a fluid and thin Subſtance? But who ever obſerv'd any ſhining in either of theſe Elements in a cloudy Day, or Night? So that Experience aſſures, That neither Air, or Water have, in themſelves, any Illuminating Propriety; unleſs he could convincs us, That a *congeries* of his *Globuli*, of which he Aſſerts the vaſt quantity of Air and Water is Compos'd, were gliſteringly parcell'd, like ſtudded Diamonds: But allowing, neither them, nor their *Vortices*, and Elements from whence he derives them, any ſuch Capacity, or ſo much as a Being, in *rerum natura*, I cannot but totally reject them, whereſoever I find them, as formerly I have done.

My next remarkable Conſideration ſhall refer to his 48th *Particular*, where he delivers the

the two main ſpecifical Qualities that he annexes to the Nature of Water; ſome of which he determines flexible, others inflexible; and if ſeparated one from another, ſome of them compoſe, or produce Salt Water, whilſt others ſweet, or freſh.

This Principle of his can never be ſo perfectly Seaſon'd, as that it ſhall not taſte of a Paradox, in the very Senſe of the Word; as it is apply'd by common Underſtanding: For what is more diſtaſtful to obvious Intelligence, than to Attribute to the Fluidity of Water, a flexible, or inflexible Qualification? Whereas Water, by its appropriated Inclination may be properly ſaid to flow, but not to bend, or conſider'd as abſolutely Inflexible: A Stick, or Cane may be bow'd by the Hand; but can a Man ſo graſp a quantity of Water, as he may be thought to Inflect, or bend the liquid Material; or feel, in any of its fluid Subſtance, ſuch an Inflexible Part; that he could not ſqueez, or if he did, immediately obſerve it ſtiffen'd into a Salt Compoſition? Could this be readily perform'd by Manual Operation, it would doubtleſs advantageouſly facilitate the Salt-Manufacture, and gratifie the Inventer with a Penſion and

thanks from the Publick, for his beneficial Project.

But I cannot perceive any ſuch aſſurance in the Writings of this *French* Gentleman; if not rather, an Imaginary Perfection conferr'd by him on the Actings of his *Globuli*; as he ſuppoſes them ſometimes to thin Water into Air, or thicken Air into Water: Much like the pretended Experiments of *Empiricks*, who boaſtingly teach, That their Operations conſiſt of ſuch a quinteſſence of Things, as were never underſtood before: Whereas indeed, 'tis a deviſ'd Tale of ſo many Non-Entities, as to any Uſe, or Effect, that could be actually perform'd by any real proceſs of ſuch Authors.

The next Exterior and Contiguous Element to Air is Water, as it is, by Philoſophers, Elementarily underſtood; of which, *In his 49th* Particular *he offers a very conſiderable Account, as he applys it to the Ebbing and Flowing of the Sea*: The external Superficies of the Earth being, in ſome ſort, ſurrounded by the Ocean, whereby the Globulous Form of the Earth is more exactly compleated.

There

There is no Speculation, within the Precincts of Nature, that has more perplex'd Learned Authors, than the Diſcovery they would attain, of the Cauſes that effect the Flux and Reflux of the Sea, every ſix Hours of Day and Night; as it is variouſly obſerv'd in different Climes, and Situations of the Earth.

But as to the Ocean in general, the ſame Compaſs of Time, relating to its Floating and Refloating is uſually expended: Whereas in the *Baltick*, as alſo, in ſome other Seas, there are no ſuch Egreſſions and Regreſſions of the Waves of the Sea; which failure is by ſome thought to proceed from the narrowneſs or ſtreightneſs of the Shores, and the adjoyning Caverns of the Earth, not large enough to receive, or be fill'd with the huge Billows of the rolling Water: Or becauſe the coldneſs of thoſe Parts of the World, obſtruct the Rarifying of Exhalations requiſitely conducing to the ſufficient Tumefying, or Swelling of the Waves that flow to their Shores.

Whether theſe Reaſons, or more that might be added, have an effectual tendency in order to the various Fluxions, and Refluxions of

of the Ocean, obſervable in many Places of the Earth, I will not diſpute; being more inclinable to believe, that it is a Secret more deeply abſconded by Nature, than can be penetrated by the moſt accurate Inquiſition of Humane Science.

Notwithſtanding it may be Affirm'd, That the remote Cauſe may probably be deriv'd from the Etherial vigour of divers Stars; but moſt eſpecially from the Moon, when gradually ariſing above the Horizon ſhe diſperſes her Beams obliquely on the Ocean, and by that means warmes, as alſo exhales from the bottom of the Sea, ſuch Exhalations, that being Dilated, Tumefy'd, and conſequently ſo weightily Increas'd, as, in a manner, they Revolve to Shores.

The next Diverſity may be apprehended from the Degrees of Motion made by the Moon, as ſhe departs from the Meridian, towards the Weſt Part of the Horizon; by which Movement, ſhe diſperſes her Raies and Light, leſs obliquely, and therefore not ſo efficaciouſly tranſmitted to the Sea, or generative of Vapors; whence follows ſuch a remiſſion of the Tumidity of the Ocean, that it ſeems to Reſide, and by ſo doing

cauſes

cauſes an Ebb or with-drawing from the Land.

Other Varieties of the Flowing and Ebbing of the Ocean, as they depend on the Motion of the Moon by Day, or Night, might be mention'd here: But I conceive the Inſtances I have given are enough, and which I thought conveniently interpos'd; becauſe the moſt Remarkable Opinion amongſt Philoſophers, before I came to the Judgment of *Des-Cartes*, on this profound Subject.

To which purpoſe, he rely's on the *Phænomena* of his *Vortices* and *Globuli*, together with the Motion of the Earth and Sea, contiguous unto it, and a Scheme delineated to that end. On all which, I am oblig'd to Inſert no other *Remark*; than by inſiſting on my abſolute denial of the total *Hypotheſis* of his *Vortices* and *Globuli*, as alſo of the Earth's Motion, either Diurnal, or Annual; which by the Diagram that I have given, in the Third Part, I doubt not, is Geometrically demonſtrated: So that it were a needleſs Repetition ſhould I reiterate the ſame Confutation.

In his 51ſt *Particular*, I confeſs, he has a Conceit, which, as to the Flux and Reflux of

of the Ocean, could I Correſpond with the dependance it has on his other Syſtems, appears to be Mathematically acceptable; by the Inſtance he gives, and ſeeming probation, why in Equinoctial Times, or when the Moon is either at Full, or at New; the Flowing of the Sea is greater than at other Seaſons: Which he thinks he Confirms, by alledging, That the Moon, at ſuch Times, and condition of her Light, has always a Vicinity to the Plane of the Ecliptick, and that the Earth, which he ſuppoſes motional, makes its Diurnal Progreſſion, according to the Plane of the Equator: From whence, ſaies he, *it comes to paſs, that thoſe two Planes Interſect one another, but in Solſtitial Times are remotely diſtant:* Concluding from thence, *that the greateſt Tides and Floatings of the Sea are in the Spring, and Autumn of the Year.*

This Theorem, howſoever it may appear to have ſome fineneſs, ſuitable to the *Copernican* Dialect, much endear'd by this Author, does undeniably Subvert that whole *Hypotheſis*: For were it granted true, That the Earth, by its Diurnal Motion, did vicinely Revolve, (as he Aſſerts) at the Time of the Equinoctial, to the Plane of the Equator; the Point, or

or Zenith over our Heads, muſt in that Inſtant be remov'd, or under the Equinoctial, and conſequently ſome other Point, in that great Circle of the Sphere, be made our Zenith: The like may be Affirm'd, if the Earth were Imagin'd to be, by her Annual and Diurnal Motion in any Parallel to the Equator: In all of which diverſities, both the Zenith, as alſo the Elevation of the Pole, muſt more, or leſs, vary or alter, in every Minute and Day of the Year throughout the World; contrary to Aſtronomical Proof and Obſervation: By which, it is very manifeſt, that both the Zenith and Elevation of the Pole are conſtantly the ſame, ſuitable to the Situation of Climes, to which they appertain: All which, in the former Treatiſe, is lineally prov'd by me; as certainly as that there is ſuch a Figure as a ſpherical Triangle.

If wav'd the improbable conjecture of the Motion of the Earth, by allowing the long receiv'd *Hypotheſis* of the Sun's Diurnal and Annual Revolution in the Ecliptick: 'Tis not to be doubted, that when the Sun is in either of the Equinoctial Points, that the Moon is more approximately and directly impower'd

by the vicine Illuminations that ſhe then receives from the Sun; by reaſon that the Ecliptick, only in thoſe Seaſons, meets the Equator in one and the ſame Point: And tho' when in oppoſition to the Sun, that is to ſay, at her Full, or greateſt plenitude of Light, ſhe has a greater horizantal Diſtance, viſible to the Eye, at that inſtant of Time, than at an other: Yet receiving, in that remote Aſpect, a more direct Illumination than ſhe does in other poſitions of her Orb, ſhe operates more powerfully on the Ocean; becauſe the Sun has, at that time, no declination from the Equator.

The like effect may be attributed to the newneſs of her Light, the Sun being in the Equator, when, in Conjunction with him there, ſhe is Illuminated neareſt to a direct or perpendicular Line, wherefore her Beams muſt neceſſarily operate more vigourouſly on the Sea; and thus, by the obſervable, Propriety that ſhe has to dilate, and encreaſe Moiſture, the Waves and Tides of the Ocean may well be granted more Impetuouſly high and ſwell'd, at Equinoctial Times, than at other Seaſons: As alſo, that the Earth, allow'd the Center of the Equator, as it is contiguouſly

contiguouſly ſurrounded by the Ocean, cannot but more efficaciouſly receive in that Eſtate and Poſition of the Luminaries, and eſpecially of the Moon, a tranſcendent flowing of the Waters of the Main, that are neareſt to the Verge of the Earth's Circumference.

In a word, when all is ſaid that can be thought, on this Subject, there is no ſuch Cauſe, to be prov'd, that in all Parts, in every National Being and Situation of the Earth, can be certainly applicable to the Flux and Reflux of the Sea, which is Experimentally found ſo variouſly different, both as to Time and Continuance, in all Parts of the Habitable World. Which cannot proceed from any uncertain Operation deſcending from above; but rather caus'd by intervening Obſtructions ariſing from the diverſities of the Temper of the Air, and Wind that alter and compell, more or leſs, the Motions of the Watery Element.

Other Reaſons and Diſcuſſions of Authors tending to the Reſolution of the fathomleſs difficulty appertaining to the Ebbing and Flowing of the Sea, might be here added: But finding them to be rather diſputative

than clearly demonſtrative: I ſhall not burden the Ingenuity of a Reader, by Inſcribing their perplexities with my Pen: Having, I conceive, deliver'd what is of greateſt probability on this wonderful Subject.

Of what Extent or Compaſs the Sea is I find not, in this, or other Writers. But that it is larger than the Earth, is evident; becauſe it ſurrounds the Terrene World: And 'tis not to be doubted, that whatſoever contains is greater than any Thing contained by it.

But as to the Depth of the Ocean, 'tis Computed, by ſome accurate Navigators, not to be more than two and a half of *Engliſh* Miles: Which is very ſtrange, if the Depth of the Sea be taken for its Diameter. Conſidering that the Sea, for the reaſon here mention'd, is bigger than the Earth; but much leſs, if by its Depth be accounted its Diameter: As may be ſeen by the Computation, of the Diameter of the Earth, that I have formerly Inſerted.

Thus far of the Earth, and its Exterior Parts.

As

As to the Inferior, I obſerve divers *Particulars* mention'd by *Des-Cartes*; *and which he ſuppoſes might be caus'd and produc'd by Materials*, according as he imagines their Operations and Effects: But theſe being Things of ſmall Conſideration, or Improvement to Knowledge; as alſo that their Nature and Uſes are, for the moſt part, as familiarly underſtood, as that there are Plants and Minerals of ſeveral Tempers, and natural Proprieties: I ſhall therefore paſs from them, to Things of more Moment; and next, as very commodious Interials of the Earth, relating to the neceſſary ſupportance of Humane Life, examine the Philoſophy of this Author, where he Inſerts his Reaſons, why Fountains and Springs that Emerge from within the Earth, ſhould taſte liquidly freſh; notwithſtanding that in ſome Depths, or Wells, the Water is Salt.

To be ſure he continues the *Phænomena's* of his imaginary Elements, *Vortices* and *Globuli*, in order to the producing of Things, as well under as above the Surface of the Earth: And thus we have, from him, *Fountains and Rivers repleniſh'd with Water.* To which purpoſe, *he has expos'd to the Eye, ſome impreſs'd Diagrams*

Diagrams, by which he undertakes to explain ſuch liquid Emanations underground, in the Cranie's of the Earth, in Similitude to the Circulation of Bloud in the Veins and Arteries of Men and Animals.

But this fanciful *Monſieur*, having not been able, as I have frequently obſerv'd, to Demonſtrate either the neceſſary Being, Motion, or Capacity of ſuch Materials, as he very confidently Introduces: I am apt to conclude, That if the Earth had not been naturally Impower'd by other means, than ſuch as are tender'd by *Des-Cartes*, whereby to ſuſtain, and engender her liquid Exiſtencies, in all the neceſſary Parts and Compoſitions of her Body: She had been endu'd with no more Moiſture, than is to be found in the Sunburnt Sands of *Africa*.

Real Cauſes there are, that may be defin'd perfectly Elementary, and therefore not ally'd to any Impotent Exiſtencies, or ſuch as may be term'd procreative Fathers and Mothers, on whoſe Mixtures depend all Terreſtrial Matter or Subſtances deliver'd with a ſimple Elementary Name, by this Author.

And thus, in the Senſe of approv'd Philoſophy, Springs and Fountains, together with

with the ſweetneſs of their Waters, may be deriv'd from Exhalations, which being Condens'd in the hollow Paſſages of the Earth, are converted into Water; as may be obſerv'd of a kind of Breathings evaporated from a Pot of Liquor, that by the frigidity of its Cover are thicken'd into ſmall Drops of a liquid Nature.

From whence it enſues, that great quantities of Sea-Water flowing in many Caverns of the Earth, ſuch tenuous Parts are exhal'd from them that being moiſtly Condens'd are turn'd into Fountains.

He bids us not wonder, as indeed we need not, *if in the bottom of ſome Wells, there may be found Salt-Water: Which he thinks might there remain, becauſe the briniſh liquidity is not ſtrain'd or clear'd from the Water of the Seas as it paſſes to ſuch Profundities.*

That Water in ſome Wells is Salt, notwithſtanding they are far diſtant from the Sea, is not to be doubted; but the reaſon he gives for their being ſo, is not certain: Becauſe it is very likely, that the Sea-Water might not paſs to any remote Parts within the Earth, and not be alter'd or purified from their ſaltneſs, by meeting, as alſo mixt, with abundance

dance of freſh Water that paſſes and repaſſes within the Earth.

Nor is it impoſſible, that divers hot Subſtances, as Minerals, and the like, contain'd in profound Places of the Earth; might not ſo efficaciouſly rarifie ſuch quantities of Water, that the reſidue would remain thicken'd, and therefore more aptly inclin'd to ſaltneſs.

But as the Supremer and not leſs Important Cauſe of the ſaltneſs of Water in Wells, eſpecially of ſome that are fartheſt diſtant from the Sea, may be reaſonably thought to proceed from the powerful Exhalations effected by the Sun and Stars; by whoſe Influence and Heat, the tenuous Parts of Water are Extracted, tho' from deepeſt Wells, leaving ſuch a craſſitudeneſs, in the reſidue as gives to it a Salt Qualification. Nothing being more certain, than that whatſoever is thicken'd, and thereby render'd more dryly aduſt, eſpecially where Earth has any Commixture with it; ſaltneſs, as its concomitant Quality, will be there found.

The ſame Reaſon may be given for Salt, diſcover'd in Mountains, mention'd by this Author.

Nor

Nor is the Cauſe at all different, if not more obviouſly expos'd, from whence proceeds the briny Reliſh of the Superficies of the Ocean: Which openly Revolving under the Celeſtial Luminaries, has its tenuous Parts ſupremely Exhaled, and conſequently the Regions repleniſh'd with Clouds; which being diſſolv'd into Drops of Rain, there is no Salt Acerbity to be perceiv'd in them; which proves, That the Moiſture exhal'd from the Sea is of a more tenuous Subſtance than that which is left behind, and therefore of a freſher Taſte.

To which may be added experimental aſſurance, that the Sea is leſs brackiſh at bottom than on its ſuperficial Parts: Which ſufficiently confirms, that the Saltneſs of Sea-Water is produc'd by the Motion and Heat that is Influenc'd by the Sun and Stars.

That the Waters of the Ocean are rather accidentally than naturally Salt; as alſo, that they purge themſelves in their paſſage to Shores, may be ſignally noted from the Experiment made by *Julius Cæſar*; who when Beſieg'd in *Alexandria*, caus'd Pits to be digg'd in the Shore of the Sea, which reliev'd his Army with Water potably freſh; by reaſon

that the Sea-Water had its Saltneſs, in a manner ſtrain'd, as it paſs'd thorough the Sands on the Shore.

That the Southern Ocean is ſalter than the Northern, can be effected from no other Cauſe, than that the Sea, in that Part of the World is Warmer than the other; correſpondent to the Air and Winds, that coming from the South are Hotter, to Senſe, than thoſe which are blown from the North.

There is no Queſtion more Controverted by Philoſophers, then the Cauſes that limit and confine the Ocean, tho' by its Elementary Propriety higher than the Superficies of the Earth, and perpetually ſupply'd with innumerable Springs, Fountains, Rivers and Flouds, that vaſtly Unite their Currents, as they elapſe from the inward and outward Parts of the Earth: Yet do not ſo repleniſh the Sea, however by Nature elevated above the Terrene World, that it executes that Prerogative by a general Inundation: Or by particular Exorbitancy, gain more on any Part of the Earth's Surface than it loſes in another.

The Reaſon of which, as it is render'd by ſome of erudite Proficiency, is, becauſe great quantities of the Water of the Sea, are re-

ceiv'd

ceiv'd by Caverns within the Earth; as likewiſe, that the Ocean is much commixt with Terrene Materials, which depreſs, in divers Places of the Sea, the outragious height and ſwelling of its Waves, before they arrive to Shores: As alſo, that the hard Compoſition and Dryneſs of the Earth, contiguouſly reſiſt the Attacks made by the Water.

Theſe Inſtances, I doubt not, are ſounder Probabilities, tending to the Deciſion of the Grand Queſtion, (before mention'd) than any to be deduc'd from *the Reaſons given by* Des-Cartes: Which are ſo complicated, if not intricately perplex'd, that he might have ſpar'd his endeavour to explain them by any Draughts, or Schemes; which, if duely Inſpected, would rather expoſe their Obſcurity, than Intelligibly clear them to the Senſe of the Peruſer.

And thus I paſs to what he Writes of Things contain'd in the Internal Parts of the Earth, together with their Cauſes: The moſt principal of which relate to Earth-quakes, the Eruption of Flames out of Mountains, ſuch as are obſerv'd of *Ætna* in *Sicily*, and *Veſuvius*, in *Campania*. Of theſe, proceeding from ſubterraneous Effects, Operations and

Cauſes; I cannot find, if granted his Principles, That a more accurate Diſcovery is explicated by his Pen, than what has been Written of their wonderful Productions and Conſequences by others.

Much he Inſcribes of Stones, Minerals, and in Summ, without enumerating of their ſeveral Denominations, *of the principal Things that are contain'd in the Bowels of the Earth.* But moſt eſpecially, *he Treats of the Magnet, or Load-ſtone, together with its admired Proprieties.*

This precious Stone, above all value for its commodious and extraordinary Uſe; whoſe tranſcendent Excellencies untill diſcover'd, in ſome few Ages paſt, was wanted to the Conduct of moſt Approv'd Navigators: Who, before underſtood the Sympathetick Virtues and wonderful Attraction of the Magnet, as by its affectionate Touch, the Points of a Needle are directive on the Ocean; were too frequently, without a Guide, benighted, and wanderingly toſs'd on the watery World; or neceſſitated to Furl their Sails, and fix Anchors in the bottom of the Main, untill diſcern'd the Munificent appearance of ſome noted Star, whoſe Motion, being Calculated, directed their Journey on the Waves of the Sea. Whereas

Whereas now, the Pilot more certainly Sails by the Compaſs that contains his Magnetical Needle, than, he could, before its Invention, by any other Computation. By what means, or happy Accident, this admirable Benefit, whoſe ſecret Cauſe and Efficacy is ſo occultly reſerv'd by Nature, from the eruditeſt Search of the Learned, was firſt Diſcover'd; ſeems rather the beneficial Act of Providence, than concentring with Humane Invention.

Notwithſtanding all which, *Des-Cartes is ſo fondly confident of his ſuppoſs'd* Phænomena's, in every conſideration, *that he doubts not to promulge*, as he would be taken for a paramount Miniſter to the Counſels of Nature, *ſuch Secrets, that being enclos'd in her Cabinet*, could only be Reveal'd by him. *To which purpoſe, he preſents his Reader with no leſs than Thirty Four* Particulars, whereby he would explain the myſterious Sympathy of the Loadſtone and Iron.

On which I am oblig'd to beſtow no other *Remark*, than by taxing of their dependancies on the Conſtruction and Management *he gives to his fabulous Elements*, Vortices *and* Globuli; by which he attempts to Conſtitute

ſtitute the World, and all its Individuals, together with their occulteſt Qualifications, and manner of Exiſtence: *As ſurely as he Imagines, that in this Place, he has Decipher'd every Syllable relating to the obſcureſt Contexture, Being, and Nature of the Magnet*; the moſt uſeful Jewel of Stones, *with all its Excellencies.*

Had it not been as eaſie for this Author, *having furniſh'd his Brain with ſo many Notions, Theories and Syſtems, by which he undertakes to penetrate and diſplay the total Receſſes of Nature*, to have given a Philoſophical Reaſon, Why the *Remora*, tho' one of the leaſt of Fiſhes, adhering to the Stern or Rudder of a great Ship, ſhould ſtop her Courſe, when under Sail, in a Tempeſtuous Sea? Or, Why the Eyes of a *Crab-Fiſh* ſhould burſt the Stone engender'd in the Bladder of Man? Yet theſe Experiments are related by undoubted Authors; but ſo as they are referr'd to ocult Cauſes, or ſuch as are impoſſible to be extricated by Humane Comprehenſion: On which account *Pliny*, the great Naturaliſt, acknowledges, that there are many Things, wholly abſconded, by the Majeſty of Nature.

From

From whence I conclude, That had this Learned *Monſieur* been as modeſt, in his Opinion, he had never propoſ'd any Maxims of his, in order to Frame *the miraculous Conſiſtence of the Univerſal World, by Materials and Operations of his deviſing:* For doing of which, however the labour of his Pen, and pregnancy of his Fancy, might in thoſe reſpects, acquire Applauſe: Yet, in a Judicious conſtruction, they cannot be allow'd any other *Encomium*, than may be given to *Ovid*, for the firſt Line, or Introduction, to his fictitious Poem; where he tells his Reader, that *In nova fert animus mutatas dicere formas Corpora*—— To be plain: I would as ſoon rely on the Metamorphoſis of that Poet, by which he fabulouſly produces the Univerſe, with all its Appurtenances; as confide, on that account, on the Principles engender'd by the Brain of *Des-Cartes*. Not but I grant, that the moſt accurate Thinker, even where Cauſes of Things are obſcurely Envelop'd, will ſignally attain the neareſt room to Philoſophical Reputation.

Notwithſtanding, the endeavours of Men are ſo far unfortunately obſtructed; that where Knowledge is moſt deſir'd, and would requiſitely

requiſitely be embrac'd, the greateſt difficulties not ſeldom Interpoſe: Inſomuch that the Faith we aſſign to the Zenith of our Salvation above; Encounters, too often, the Soul with dubious Sentiments, that in a natural Conception are more remote from our Apprehenſion; than the abſconded Cauſe that guides the Magnetical Needle to Epitomize a Line that would direct its Points towards the vaſtly diſtant Poles of the World.

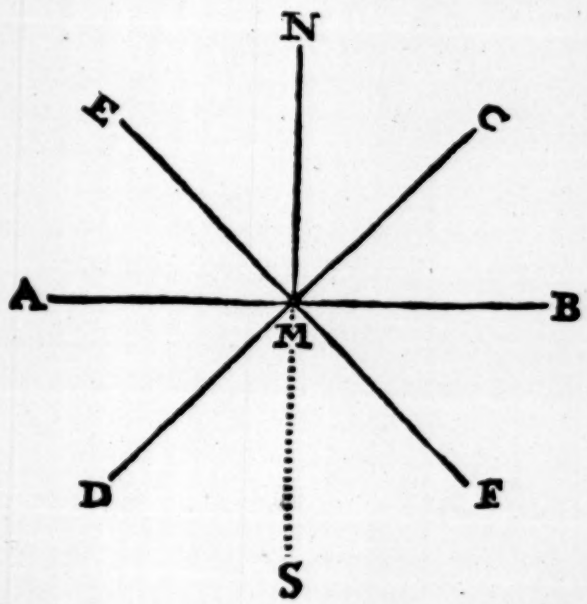
The main Suppoſition of this Author, and on which chiefly his before-mention'd Thirty Four *Particulars*, relating to the eſpecial Inclination of the Magnet, or the Needle touch'd by it, to regard the Nothern and Southern Points of Heaven; is, That he ſuppoſes two Poles in the Magnet that reſpect thoſe Parts, or Poles on which he imagines the Earth to Move. But how the Load-Stone ſhould be accompliſh'd with two ſuch Poles, that Sympathetically affect thoſe Points of the World, he offers no natural Reaſon for their Conſiſtence or Operation.

Some of the Learned have thought, that by a ſecret Sympathy Influenc'd by Nothern and Southern Stars, the Magnetical Needle points towards them.

Others

Others have more naturally, appropriated the Cauſe to vaſt quantities of Iron ſituated, as ſome think, under the North, or South Pole of the World: From which Opinion, perhaps as probable as any other, may be inferr'd, That if one end of the Needle does ſteadily Point Northward, the other will as certainly Point Southward; becauſe the Needle will be then demonſtratively in the ſame Plane, with the Meridian Line, if not accidentally hinder'd:

As may be Geometrically prov'd by the following Diagram: Let the Point of the Ma-



gnetical Needle be in M, in the Line A B;

to which Point the Line N M falls perpendicularly, from the North Pole N, on the Point M: It is manifeſt, that the Point in M, if continued to S, as it is here ſignified by the prickt Line M S; ſhall be in the Plane of the Meridian Line extended from N M to S: Becauſe the Lines C D E F, and A B are perpendicular to the Line N M, in the Point of their common Interſections at M: So that the other end of the Magnetical Needle will reſpect in the ſame direct Line, the South Point of the Meridian: But if it had directed its Point obliquely to that, or any other Point in the Line A B, the Variation would have been equal to the diſtance of that Point, or Angle made by it, from the Plane of the Meridian Line N M.

But notwithſtanding the ſtrong Inclination, or ſympathetical Affection, that the Magnetick Needle has directly to repreſent the two Polar Points of the World: 'Tis frequently obſerv'd, that in ſome Places of the Earth, 'tho not far diſtant from one another, it conſiderably differ'd, if compar'd with what it does in other Situations.

And

And what is more admirable, if plac'd, as near as could be judg'd, on the ſame foot of Ground, it has at one time more or leſs vary'd, than at another: And thus it is frequently obſerv'd that very near the ſame Place, higher, or lower, or on the contrary Sides of a Wall or Window, that the Magnetical Needle hath pointed on contrary ſides of the Meridian: Which might be from different Azimuths, as the Compaſs was plac'd; much like to the Subſtile of a declining Dyal on ſeveral Plaines.

Whether caus'd by ſome Aſpects and Motions of Stars, Alterations of the Air, Water, Earth, and Seaſons of the Year, or Metals conceal'd within the Surface of the Earth: If not, as ſome have Imagin'd, diverted, or variouſly drawn aſide by quantities of Iron that in Towns and Cities, were more, or leſs, when Obſervation has been made, near their Precincts: As was the Opinion of Learned *Gilbert*, who is ſaid to have ſpent 50000 Crowns on his endeavour to find out the Secret. But whatever were the Cauſe; I think it not improper to mention the ſignal Obſervation made by practical Mr. *Gunter*, in the 279 Page of his Book, where he Writes, that being inform'd in

what place Mr. *Bourough*, in the Year 1580, had obſerv'd the Variation of the Compaſs at *Limehouſe* near *London*, compar'd with the Azimuth of the Sun, to be 11 *deg.* 15 *m.* That he on the 13th of *June*, 1622, made Obſervations on ſeveral Parts of the Ground in that Place; and could find the greateſt Variation of the Needle to be but 6 *deg.* 10 *m.* Which differs from the Obſervation made by Mr. *Bourough* 5 *deg.* 5 *m.* And tho' betwixt theſe Obſervations there was 42 Years difference; it may be demonſtratively concluded from them, that if the Earth be ſuppos'd to Move, as *Des-Cartes* Imagines, it could not vary its Poles, nor the Magnetical Needle, if granted, with him, to have Poles alſo, by the Virtue it receives from the Touch of the Magnet; becauſe both theſe Learned Authors made their Experiment in the ſame Place.

Having conſider'd theſe Obſervations, and not knowing whether, or not, the Variation of the Compaſs had been obſerv'd at *Windſor*, where I now Reſide, I made, from a high and convenient Place, theſe following Obſervations, by comparing the Magnetical Azi-

muth

muth of a Needle ſix Inches long, and I believe exactly touched, with the Azimuth of the Sun, from the Meridian Eaſtward; or all one, as to Calculation, if number'd from the Meridian Weſtward, and found the ſeveral Variations of the Compaſs in this preſent Year, *September* the 9th, 1699, betwixt the Hours of Four and Five in the Afternoon, according to the ſeveral Altitudes of the Sun, as in this Table Inſerted.

Alt. ☉	*Azm.*	*Azm*	*Variat.*
gr. m	*gr. m.*	*gr. m*	*gr. m.*
19 11	57	66 32	9 32
17 1	57	69 40	12 40
14 48	57	72 49	15 49
12 33	57	75 54	18 54
10 17	57	80 24	23 24

If the mean proportional Number be computed betwixt the firſt Variation and the laſt, as they are Inſcrib'd in this Table, it will be found 14 *deg.* 51 *m.* which differs but 3 *deg.* 37 *m.* from Mr. *Bourough's* Obſervation. Which might be his Method, as he might obſerve betwixt Hours: Or elſe, from a ſuitable Altitude of the Sun, made his Obſervation; which is more probable, the Needle ſtanding at one and the ſame Point, as it will do for ſome time, at leaſt, if it be exact; than that his Obſervation, at one and the ſame Place at *Limehouſe*,

houſe, ſhould differ ſo many Degrees, as are above noted, from the Variation of the Compaſs found there by Mr. *Gunter:* In Summ, I found that Mr. *Gunter's* Obſervation of the Variation of the Compaſs, at the firſt place he obſerv'd when the Sun was at 19 *deg.* of Altitude, for he mentions ſeveral; differ'd but 3 *deg.* 20 *m.* from the firſt of mine, as his Needle might Point Weſtward from the Meridian, and mine Eaſtward, which was at 19 *deg.* 11 *m.* of the Sun's Altitude: From whence I conclude, That had he made his Obſervation at the ſame Altitude and Declination of the Sun, as was done by me, there had been proportionably the ſame difference, if compar'd with my Table; ſuppoſing his Magnetical Azimuth to have continu'd at 82 *deg.* 2 *m.* as it was firſt in his; and his Obſervations, at his firſt Station, at *Limehouſe*, as many as mine.

In a Word, having duely ponder'd the Calculations made by my ſelf and others, whereby to attain the exact Determination of this Great, and as yet unreſolv'd Secret of the Variation of the Compaſs: I conſider'd, that as the Magnetical Needle did Point, for the moſt part certainly, at

ſo

ſo many Degrees of Variation, as it will do for a conſiderable ſpace of Time, if the Needle be as perfect as it ought to be; that there could be no ſurer Method, than to find ſuch a Theorem, as ſhould, as near as poſſible, demonſtrate the Annual Variation of the Compaſs: To which purpoſe, I devis'd this Proceſs:

If betwixt the Sun's Declination of 30 *m.* from the Equator, as alſo his Altitude, ſuppoſe 30 *m.* or leſs, if thought neceſſary, be taken the mean proportional *Sine*, betwixt his Azimuth at 30 *m.* of Declination and Altitude, and the Complement in Degrees, of the moſt conſtant ſtanding of the Magnetical Azimuth; and next that the ſame be done from his greateſt Declination, wanting 30 *m.* and 30 *m.* of Altitude, and the difference taken betwixt both the Mean Proportionals ſo found; it is probably, the moſt certain way to find the Variation of the Compaſs, in any one Place, throughout the Year.

Example.

By my Obſervation at *Windſor*, *Sept.* 9th, 1699: I found the moſt conſtant and fix'd Point.

Point of the Magnetical Needle to be 33 *deg.* Eaſtward from the Meridian, or the ſame if accounted Weſtward from the Miridian, whoſe Complement to 90, is 57 *deg.* The Mean proportional *Sine* betwixt the Sun's greateſt Azimuth at 30 *m.* Of Altitude and Declination and the Magnetical Azimuth was 66 *deg.* 19 *m.*: And the Mean proportional *Sine* betwixt the Magnetical Azimuth, and his Azimuth of greateſt Declination wanting 30 *m.* and Altitude 30 *m.* was 51 *deg.* 21 *m.*: The difference betwixt which Mean Proportionals is 11 *deg.* 58 *m.*: Which I take to be the moſt approximate Variation of the the Compaſs at *Windſor*, in the Place where I obſerv'd, that can be given throughout the Year.

After theſe Obſervations, I continu'd the Needle for ſeveral Weeks in the ſame Place, and found the difference of its Pointing very inconſiderable, or not varying a Degree from whence it had ſtood before; as alſo, that it ſometimes return'd to the very Degree, to which it had precedently pointed: Which as I diſcern'd was upon Change of Weather; and inclin'd me to conclude, That as Clocks and Watches go trueſt in a ſe-

rene

rene Seaſon, and temperature of the Air, that the Magnetical Needle might likewiſe ſomewhat vary: It being not leſs probable, that it might be ſo affected, conſidering its Elementary Temper, as well as other mix'd Bodies. And I am very apt to impute its temporary Variation, chiefly to that Cauſe, rather than to any other: Tho' I well know, that not a few pretend to other Reaſons; or ſuch as I have already Inſtanc'd.

As alſo how they infer, That in Places remote from Towns and Cities, the Magnetical Needle does more, or leſs vary: Which Obſervations were they Judiciouſly made, and Methodically collected and compar'd, might doubtleſs be a performance that would be gratefully receiv'd; and in ſome reſpects forward the Curioſities of Men to a more requiſite Reaſoning, or uſeful diſcovery of the Cauſes and Effects, that are admirably Imply'd in the Proprieties of the Loadſtone.

But if *Des-Cartes* had been ask'd the Cauſe of theſe Diverſities, or Variations in the Magnetical Needle, however impoſſible as he grounds his Opinion, by reaſon of the Obſervations I have Inſerted; he would confi-

dently have referr'd them to the Conſiſtence and Qualifications that the Magnet, in his Senſe, receives from ſome one or more of his Invented Elements; *by which he ſuppoſes that particular Parts of the Load-ſtone are channell'd, or craggy, more or leſs, ſuitable to ſuch ſtriated, or hollow Particles of the Earth that reſpect its two Poles North and South.*

But how comes the Earth to have two ſuch Poles, if by Poles be underſtood, as in an Aſtronomical Senſe they ought, Points in the Axis of a Sphere, or Planetary Orb? I may conclude, that if the Earth be Immovable, as I preſume has been egregiouſly prov'd in the Third Part of my *Remarks*, then the Earth has no ſuch Poles, as he would provide for her.

Or were I a *Carteſian* Proſelyte, and ſhould grant, according *to his* Hypotheſis, *That the Earth is Imbu'd with a Diurnal and Annual Motion ſuitable to the* Vortex, *by which, in the Opinion of this Author, ſhe does Revolve:* Muſt I not alſo Affirm, That if the Magnet has correſpondent Poles with the Earth, that it alſo Concenters, in all reſpects, with the ſame Motion? But where is the Man that ever obſerv'd, or can reaſonably Infer, That any

any ſuch Movement is Incident to the Load-ſtone, more than to a Flint, or Peeble?

The moſt probable Reaſon that is given for the diverſified Variation, at ſeveral times and places, obſerv'd, of the Magnetical Needle, as it experimentally relates, to different Points of the Compaſs, may, in Summ, be referr'd to what this Author cites from our Country-man the Learned *Gilbert*; who chiefly imputes the Cauſe of the diverſities to ſome Inequalities or alterable Tempers in the Superficies of the Earth: Or becauſe there are more Load-ſtones in ſome Parts of the terrene World than in other: To which may be added, agreeable to the Opinion of *Des-Cartes*, that in ſome Seaſons, more Iron is digg'd out of the Earth, and convey'd to diſtant Places, or Regions for publick and private Uſes: Which might contribute much to the changeable Variations of the Magnetical Needle; as they have been by Learned Obſervators, at ſeveral times, differently Computed.

Upon the whole Matter, tending to the great Secret of the Needle touch'd by the Magnet, I find not, that the Inferences, above-mention'd, are more paſſable with me, than any

Allowance of mine, correſpondent to the Opinion, of this Author of Poles in the Earth, or Affinity with them in the Load-ſtone, or Virtue, on that account, conferr'd by him on the Needle.

Wherefore I judge, that I may with ſounder confidence adhere to the Reaſons and Obſervations, precedently offer'd by me, than on any determination of the Magnetical Secret, tender'd by this Writer: The Maxims and Principles of *Des-Cartes* being ſo entirely deduc'd and connected by him, that if one of his *Particulars* be Anſwer'd, he gives no labour to his Oppoſer to have to do with more. Which I confeſs I take for a favour, tho' poſſibly againſt his Intention. And ſhould I have been more Elaborate in my purſuit, or Conviction of his Tenents, as I perceive them perplex'dly deliver'd, and entangled both in the Senſe, Method, Figures and Schemes, by which he does, in a manner, no leſs poſe himſelf than his Reader; my Replications would have been no leſs ungrateful to a Judicious Peruſer, than if I had elaborately undertaken by one obſcurity to manifeſt another: So that I may ſafely conclude, that the occult Quality,

in reference to the Magnet, with all its Proprieties, is not more darkly reſerv'd by Nature, than 'tis envelop'd in the Writings of *Des-Cartes.* Nor need I repeat, that if I have render'd Invalid his Firſt main *Particular*; by proving, as I have done, neither the Earth, or Magnet has any ſuch Poles, or Motion, Incident to his *Hypotheſis*; I may undoubtedly alledge, that his other Poſitions are totally Ineffectual.

And thus I paſs to his 184th *Particular, where he mentions ſome other Things, as Jet, Roſin, Wax, Vitriol and the like*; to which he annexes, in reſemblance of the Magnet, *a Propriety whereby they Attract other diminutive Bodies: But of theſe not having made ſuch perfect Experiments, as might render them clearly Intelligible, or grounded no leſs evidently, in his Judgment, than he has ſignified by the Compoſition, and Motions of Things, deducible from his ſuppoſed Elements, already diſprov'd by me: He does, to as little purpoſe, Inſtance their Names and Natures.* And therefore require no farther Diſcuſſion: It being my eſſential Deſign to limit, chiefly my *Remarks* to ſuch Heads and Places of his Tractates, that I judge uſefully conducing to the Improvement of Science, or whatſoever

whatſoever by the Humane Mind would be moſt deſirably underſtood: To which purpoſe, I will take occaſion *from the hint he delivers of his Intention to compleat this Fourth Part of his Philoſophy, wherein he has given,* (after his manner) *the Earth a Formation and Being, together with divers Things relating to its external, and internal Comprehenſion; by adding his Treatments of the Original Production of Animals, Plants and Mankind.*

The laſt of which I ſhall principally inſiſt on; tho' wav'd, or deferr'd by him, in his 188th *Particular*, to ſome future Treatiſes, of which he was not fully reſolv'd, or, at that time, furniſh'd with leiſure, or thoughts proper for his deſign'd Enterpriſe on thoſe Subjects: Yet I find, that the Subſtance, of what he omits here, and eſpecially that of the Original of Humane Production, is to be read in the 29th Page of his *Diſſertatio de Methodo, or the right uſe of Reaſon, in order to the Inveſtigation of the Truth of Science*: Which I conceive was written before the Principles of his Philoſophy; or indeed an Epitome, for the moſt part, of what is to be found in them.

Wherefore

Wherefore, I ſhall briefly ſelect from thence, ſo much of his Method, *tending to the primitive Exiſtence of Mankind; as alſo by what Cauſe, or operation, individual Man was originally Conſtituted* in his admirable Form, and, more than wonderful Intellectual Capacity.

The Summ of all which he comprehends in theſe Words: *viz. That God did form the firſt Being of the Humane Body in all things correſpondent to what it is now; both in the External ſtructure of Members, as alſo in the Internal and Organical Parts, produc'd out of the ſame matter,* by which is meant by *Des-Cartes, his firſt Element,* as before remark'd by me. *The method by which he ſuppoſes that God compleated the primary formation of Man, he takes to be no other than a corporeal ſubſtance, without either Senſitive, or Animated Proprieties,* or, ſuch as are obſervable in Plants, or Beaſts, *but only endu'd in the Heart with a kind of Fire without light, which he compares to a Hay-rick, diſtemperately warm before it is thoroughly dry; or the calefaction that is in new Wine, before ſeparated from its Dregs.*

But how he comes to give an Exiſtence to Fire, in the original production that he confers

on

on the Humane Body; is no leſs contradictory to Senſe, than if he had Affirm'd, that Flame could be infus'd into any Corporeal Thing without its Illuminating Capacity.

True it is, that Hay ill-digeſted will ſmoak in the Stack, or Mow; and if not prevented ſet the whole on Fire: And likewiſe experimentally certain, that New Wine will ferment, untill cleans'd by its Operation; the latter, by reaſon of its predominant Quantity of Moiſture, not capable of being inflam'd, as will the former; that by prevalent dryneſs, oppoſing of its Moiſture, ſmoaks and burns, by degrees, unleſs hinder'd, the Hay's diſtemper'd Subſtance.

And is it not *a mean conceited Similitude offer'd by* Des-Cartes, *by which he would render the Corporeal Figure of Original Man, as diſtemperately Conſiſtent, tho' the immediate Manufacture, as he delivers it, of the Omnipotent?* Yet being ſo far effected, could have no other Repreſentation, than as the Material Compoſition might be Imagin'd to fumigate, or Smoak at the Noſe and Mouth, in reſemblance to the diſtemperatures of *Hay and Wine, mention'd by him, yet not potentially operative, either by Rariſaction or Condenſation*; tho'

tho' impoſſible to be ſuppos'd where any Thing is capacitated to Evaporate, Thicken, or Harden, that it ſhould not be naturally endu'd with ſuitable Qualifications: Which is groſly deny'd *by this Author, as he conceives, That Fire might be ſo diffus'd, by the Act of God, into the Subſtance and Compoſition of Original Man, that it might be deſtitute of its proper Effects; either as to Alteration, or Diminution of the Matter that contain'd it:* And if ſo, he muſt be very obſcurely conceited, that would imagine a blind Fire uſeleſsly Conſtituted in the firſt Humane Body by Omnipotent Power.

The Material Subſtance out of which he concludes the primary Being of Man's Corporeal Shape and Proportion, is doubtleſs abſtracted by him from his primary invented Element, *and which he denominates the ſole Materiality of whatſoever the World contains.*

But that Element, *according to his Deſinition, being exceedingly Fluid and Tenuous,* and no room left, by reaſon of its plenary Exiſting for any other Thing, or Subſtance throughout the Univerſe, as I have precedently mention'd; 'tis very Incompatible with common Underſtanding, that this ſimple Matter, and

therefore incapable to produce any other Subſtance different from its own; *ſhould by* Des-Cartes *be preſum'd*, if pardon'd the Expreſſion, *to fill the Hands of the Almighty in order to Conſtitute the total World withall its admir'd* Particulars, *in a natural Method*: Which ſeems no leſs Improbable, than if a Man ſhould undertake, by graſping of Air, to make it of as ſolid a Subſtance, as is the Fleſh and Bones of Man.

But waving that Abſurdity, *as alſo, that Fire without Light, was originally convey'd by God*, according to his Suppoſition, *into the then, unliving Heart of Man, only to warm that principal Part*; If Fire could be thought ſo to reſide, contrary to its elementary Nature and conſuming Propriety, untill this Author imagin'd the whole Humane Body firſt Animated, by the infuſing of the Soul by the Act of the Almighty: What could be imply'd by it, more than, that Fire was Ineffectually diſpos'd into the Lifeleſs Heart of Man by Divine Appointment; yet not at all operative, otherwiſe than by impertinently warming of the Part without *either vegetative, or ſenſitive Heat, as he defines it*? Which were all one as to conceive, That the Omnipotent ſeem'd to do ſomething,

by

by an extraordinary Method, tho' nothing farther Excellent, in reference to the Original Figure of Man's Corporeal Being, than if a skillful Statuary had Compos'd the likeneſs of the Humane Body in any Material Subſtance.

Wherefore the Fable of *Prometheus* tending to his forming of Man out of Elementary Ingredients, not a little reſembles the devis'd Part of the Almighty, *as it is deliver'd by this* French *Philoſopher*; with this difference, that *Prometheus* is ſaid at once to compleat, by a Celeſtial Expedient, his Artificial Man; whereas *ſeveral Operations are allow'd by* Des-Cartes, *even to the Work of the Omnipotent; tending to the primary Production of the Humane Body and Soul.*

Nor do I preceive, That this Author, if allow'd the fineneſs of his Invention, does more ſublimely Celebrate the introducing of the Soul of Man into his imaginary Material Machine, than is Divinely Attributed to the Fable of *Prometheus*, the Son of *Iapetus*, in the *Metamorphoſis* of *Ovid*; where 'tis thus Expreſs'd,——

Natus Homo eſt: ſive hunc divino ſemine fecit
Ille opifex rerum, mundi melioris origo:
Sive recens tellus, ſeductaque nuper ab alto
Æthere, cognati retinebat ſemina cœli:
Quam ſatus Iapeto miſtam fluvialibus undis
Finxit in effigiem moderantum cuncta deorum.

This Fable may be taken as an Imitation of Providence, by the Artifice of *Prometheus*: Who, having moulded the Statue of Man, could not perfect his Work, untill he had ſtole Celeſtial Fire; and by conveying it into the Material Figure, which he had Compos'd, the Life and Soul of Man was at once produc'd: Which was very agreeable to the Religion of the Ancients, which Celebrated their Gods, and Goddeſſes, in the Form of Men and Women; and Enſoul'd them wth no greater difference, compar'd with Mankind; than as they allow'd to their Deities Immortal Reaſon and Life. To which *Ovid* ſeems refin'dly to allude in one of his Elegies, where as a ſublime *Encomium* of the excellency of the Faculties and Gifts, incident to the Humane Soul, he derives its Deſcent from above, by Affirming, That — *Sedibus æthereis ſpiritus ille venit.*

This

This Expreſſion of the Poet is not more Poetical, than Admirable, as he intends the Soul to the Perfection, Reaſon and Conduct, evidently diſcernable in Stars, the ſhining Ornaments of Heaven: But ſhould the Soul be ſuppos'd originally Infus'd by God, *as a thinking Subſtance into the Body of Man, ſuitable to the Imagination of* Des-Cartes, and not abſolutely capacitated to diſcharge it ſelf from the innate Depravations and prone Allurements of the Senſes, 'twere ſome diſparagement to its Acceſſion to the Body by the Gift and Ordainment of Divine Providence.

Yet ſuch an uncertain and complicated Soul is, by this *French Writer*, *appropriated to the Body of Man, where, in ſome Actions, he makes it a meer thinking Subſtance; but in the ſenſible execution of Thought, he allows it Co-operative and inſeparable from the Senſes:* And this, to the utmoſt force of his Brain, *he Aſſerts in the* 187th Particular *of this Part I Treat of*, where he delivers theſe Words— *The nature of the Mind is ſuch, that by it alone may be apprehended divers Corporeal Motions, as alſo Senſations in many reſpects.* The Example he gives, *is of Words ſpoken, or written, which may affect us with Troubles, Griefs, Perils, Sadneſs, or the like;*

like; as alſo, how their contrary Accents in reſe-rence to Content, Pleaſure, and Satisfaction, are verbally underſtood by us.

Which ſignifies no more, *however he ſtrains his Inferences*, than, that there is an Inſeparable Concomitancy of the Contemplations of the Mind, and their applications to the Senſes. If I open a Book, and view in it a whole Page of Letters; by a meer ſuperficial Inſpection of what is there Written, or Printed, I can underſtand nothing; but if I Conſter thoſe Words, as their tendency and meaning Imply, I am ſoon Intelligent, whether they relate to Sorrow, Gladneſs, Pain, or Grief; either as to my ſelf, or any other Perſon: Becauſe I am perfectly apprehenſive of their Motives, Cauſes and Effects; as they ſenſibly Incite my Conception of them. The Reaſon is plain, if conſider'd the reciprocal Allowance and Reference, that any one of our Senſes has to another; it being as eaſie for me to determine, by ſeeing a Bone, or Lump of Fleſh at diſtance, that they are really ſuch as if they had been touch'd, or handled by me. If I hear of an Arm or Leg, by any means, ſever'd from the Body of Man; the Connexion that the Senſes have with the Imagination, as undoubtedly aſſure

aſſure me of the manner of the Wound, Grief, and Part cut off, as if I had occularly beheld it. Not that I can directly judge the Quality, or full extent of the Pain that is not diſtinctly felt by my ſelf: Yet as the Part is an Object of Senſe, and in which I, as well as another Man, may be in the ſame kind, grievouſly Afflicted; 'tis very poſſible, that by a natural Sympathy, which is reciprocally Conferr'd on the ſenſitive Parts of the Bodies of Men; I may, in effect, be as ſenſibly Intelligent of the Pain, or Grief, in any Member of another Perſon; as if with the Point of a Weapon, I ſhould wound the ſame Part of my own Body.

And did not the Soul and Senſes thus apprehenſively Conſpire; there would not be that Reluctancy, Defence, and Prevention, us'd by us, for the ſafety of our Corporeal Parts; nor ſhould we be ſo actually ſenſible that Mortality is the inevitable conſequence of unſupportable Violence, Wounds, and Maladies, that ſurrender our Bodies to Death. And this clearly invalidates *the Allegations and Inſtances, that he gives, on this Head, together with the Example he mentions of a Sword that may ſo hurt, or diſmember any Part of the Body*,

Body, that we may in Mind, be grievously apprehensive of the local Motion of the Force, or Blow, as it wounds the Part; tho' the Motion of the Sword and Body hurt, be very different: From whence he concludes, *That the Humane Mind by a bare speculation of local Motion, together with its forcible onset made on the Body, may judge of all Corporeal Afflictions and Sensations whatsoever.*

And is not this a pretty kind of Quibble in *Des-Cartes*, by not considering, That it was not the Motion of the Blow, or the wounded Part that represented to the Intellect, or Mind, the hurt receiv'd; but as the Pain of the Member, or Part, assur'd the Imagination unto which it was inseparably united? It being very possible, for a Man to be sensibly apprehensive of a Wound, or Blow, tho' he does not conceive, or see the Motion of the Weapon that gave it: But as he is sensible of the Pain, he could not doubt, that it was effected by forcible means, tho' no otherwise relating to the Wound; or more diversified from sensible Conception, than, on this occasion, *this Author does render the Mind, or what he calls a Thinking Substance, by a modality of Thinking without Sense.*

Nor

Nor is it Imaginable, how any Thing, that is not Elementarily Compos'd, can operate on the Humane Body that is ſo conſtituted: Wherefore the Word Subſtance, applied to the Soul, cannot be underſtood Incorporeal, by the determination of *Des-Cartes, who, whereſoever he treats of Subſtance, appropriates unto it quantitative and dimenſive Parts, both in a Philoſophical and Mathematical Conſideration:* And particularly, in the laſt Page *of this Fourth Part of his Philoſophy, condemns the Doctrine of Atoms, deliver'd by* Democritus; *becauſe he allows them no Commenſurable Quantity.*

Had it been demanded of this *French Philoſopher*, What kind of Subſtance muſt be the Eſſence of the Soul, when ſeparated by Death, from the Body, in whoſe Elementary Compoſition it did precedently Exiſt? *He could not define it otherwiſe than quantitative, as every Thing, call'd Subſtance, is by his Opinion allow'd to be*; and therefore the ſame after the period of the Body's Life. And conſequently, no leſs agreeable *to his Doctrine*, if Affirm'd, That the thinking Subſtance, *call'd by him the Humane Soul*, muſt have, when ſeparated from the Body, a Circumſcrib'd, or Elementary Being, ſuitable to the Nature

of Subſtance, as it may be conceiv'd quantitatively Dimenſive. Which Objection ſhould a *Carteſian* endeavour to evade by Affirming, That the Soul ſeparated from the Body is progreſſive to the Sphere of Spirits, or Things ſuperlatively refin'd and ſtripp'd from Matter; and unto which ſome allow Definitive, not Circumſcrib'd Beings; he muſt next grant, That the Soul cannot have Exiſtence there, otherwiſe than in a Material Superficies proportionable to its Subſtance, and there eternally Circumſcrib'd, where Spirits and Immaterial Beings are without ſuch Limits; which were all one as to reſide temporally amongſt ſpiritual Exiſtencies. To avoid which Abſurdity, he cannot be thought to mean otherwiſe, *than that the Soul, upon its immediate departure from the Body, is Metamorphos'd into a Spirit: And next, that it has a ſpiritual Paſſage through all Elementary Bodies that intervene betwixt it and its immaterial Reſidence appointed by God.*

But here may ariſe a *Querie*, Whether Motion can be Attributed to any Thing without Body? Or in what manner it can Move, where Bodies are, or be in Motion, without removing of them? Which, in that Circumſtance,

cumſtance, would render a Soul, however deem'd ſpiritual, Commenſurably Moving; as by Parts of Time it might have an intermixt Progreſſion, with other Subſtances, as its temporary Meaſure.

Certain it is, that Stars, the Luminaries of Heaven, if duely conſider'd their wonderful Motion, unalterable Eſſence, and continuation, may be allow'd our moſt viſible and perpetual miraculous Objects; or ſomewhat more than, in Nature, can be properly worded. But ſhould thoſe Etherial Beings be ſuppos'd, in any Place, where Elementary Subſtances might Exiſt; it were impoſſible they could move uncommixt with Things of different Nature from theirs: Wherefore it muſt be granted, That the Orbs above, together with the Stars and Planets, are of one ſimple Eſſence, or Manner of Exiſtence; and therefore cannot Mingle, or Move with other Matter diſtinct from their own: Tho' by Divine Appointment, as Parts of the ſame miraculous Subſtance, they are only Illuminated.

But ſhould the Soul of Man be Aſſimilated, by any refin'd Contemplation to the Nature to the Etherial Luminaries, for want of a

more obvious, or excellent Compariſon; 'tis not eaſie to conceive, how in its Paſſage from the Body, when Life departs, it ſhould remove to its appointed Reſidence, ſeparated from Intervening Subſtances, which in their Temperatures and Parts are of the ſame Elementary Compoſition with the Humane Body that had been actuated by it.

Which Objection *was doubtleſs conſider'd as cauſing ſome Heſitation in the Thoughts of* Des-Cartes; *who, notwithſtanding the pretended curioſity of his Imagination, in reference to the Soul diſpos'd, according to his Method, into the Original Formation, by God, as he delivers the Operation of the Humane Body:* He does not at all expreſs the Manner of its departure, from its Corporeal Station, at the period of Life: Or by what means transferr'd, or remov'd to its Immortal Reſidence; which was to be expected from the proceſs he delivers: *Who having determin'd, that the Humane Soul is a thinking Subſtance, and notionally Active in the Conduct of the Living Body, he might as well have Inſerted the Method of its Progreſſion after Death, from its Bodily Habitation; and how, being a Subſtance it arriv'd to its Immortal Abode, without being Complicated, Mov'd, or Moving, in its Paſſage,*

Paſſage, with any material Thing by any reſemblance to what it perform'd, when acting in the Incloſure of the Body of Man.

All which, according to the liberty he gives to his Invention, might have been as ſucceſsfully deliver'd by him, as the diſpatch he gives to his *Globuli* and *Vortices* by variety of Schemes, and Diagrams, that have no better proof than the Suppoſitions of *Des-Cartes*: But it ſeems, he thought it ſafer for his Pen to Inſcribe his Imagination of the Soul, primarily convey'd, by the Act of the Almighty into the Humane Body, than by what ſubſequent Means, or Paſport from above, its Subſtance arriv'd, after the Death of the Body, to its determin'd Exiſtence. Of which I find no mention in any of his Works; *other, than that he leaves the Manner of the Soul's paſſing from the lifeleſs Body, together with its Journey to its Immortal Reſidence, to the miraculous Conduct of the Almighty.*

And I think it devoutly Judicious, if, according to his Example, I ſilence my *Querie*, on this Incomprehenſible Subject: Since by the Will of the Omnipotent Diſpoſer and Conſervator of the Univerſal World, together with the Being of Mankind in Soul and Body,

our

our rational Abilities more aptly tend to admire, than determine the Manner by which we are Enſoul'd to live, or after Death to remain Immortal.

A Contemplation ſublimely incumbent on the Humane Mind, that is enough Capacitated to underſtand its Intellectual Dignity; however its Eſſence and Operations, within us, are ſuperlative to our Apprehenſions, or exact Definitions to be given of them.

Wherefore I doubt not that my Diſcuſſions, on this great *Particular*, are no leſs valid, where I differ from him, than what I have Remark'd on not a few of *his main Principles, Maxims, Notions*, Hypotheſes, *and Schemes*; or demonſtratively wav'd, or rejected the Inſufficiency of others, on whatſoever account: So that I dare Affirm, that I have not omitted any ſignificant or uſeful Animadverſion.

And had I more particularly inſiſted on any Speculations, or Matter ſeemingly varied and Inſtanc'd by him; I had, in effect, but encreas'd Words to one and the ſame tendency: And therefore, where, in Subſtance, my Obſervations, on ſome Things include other, I deſire that my Reader would ingenuouſly conſider them, as they ought to be underſtood.

And

And tho' this Author is very inclinable to Celebrate his own Eſteem by frequently Affirming, That his Aſſertions and Tenents, are Philoſophically and Mathematically certain: I will boaſt of no Succeſs of mine, to the contrary, farther than is Equivalent with the Proofs I have made, and to which I refer the Judicious Peruſer.

And thus I conclude the Fourth and laſt Part *of my Remarks on the Philoſophy of* Des-Cartes.

FINIS.